Aluminum statistical review for 1987

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Aluminum statistical review for 1987

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Contents

The Aluminum Association does not warrant the accuracy or completeness of any data in this Review. All data contained herein are subject to revision.

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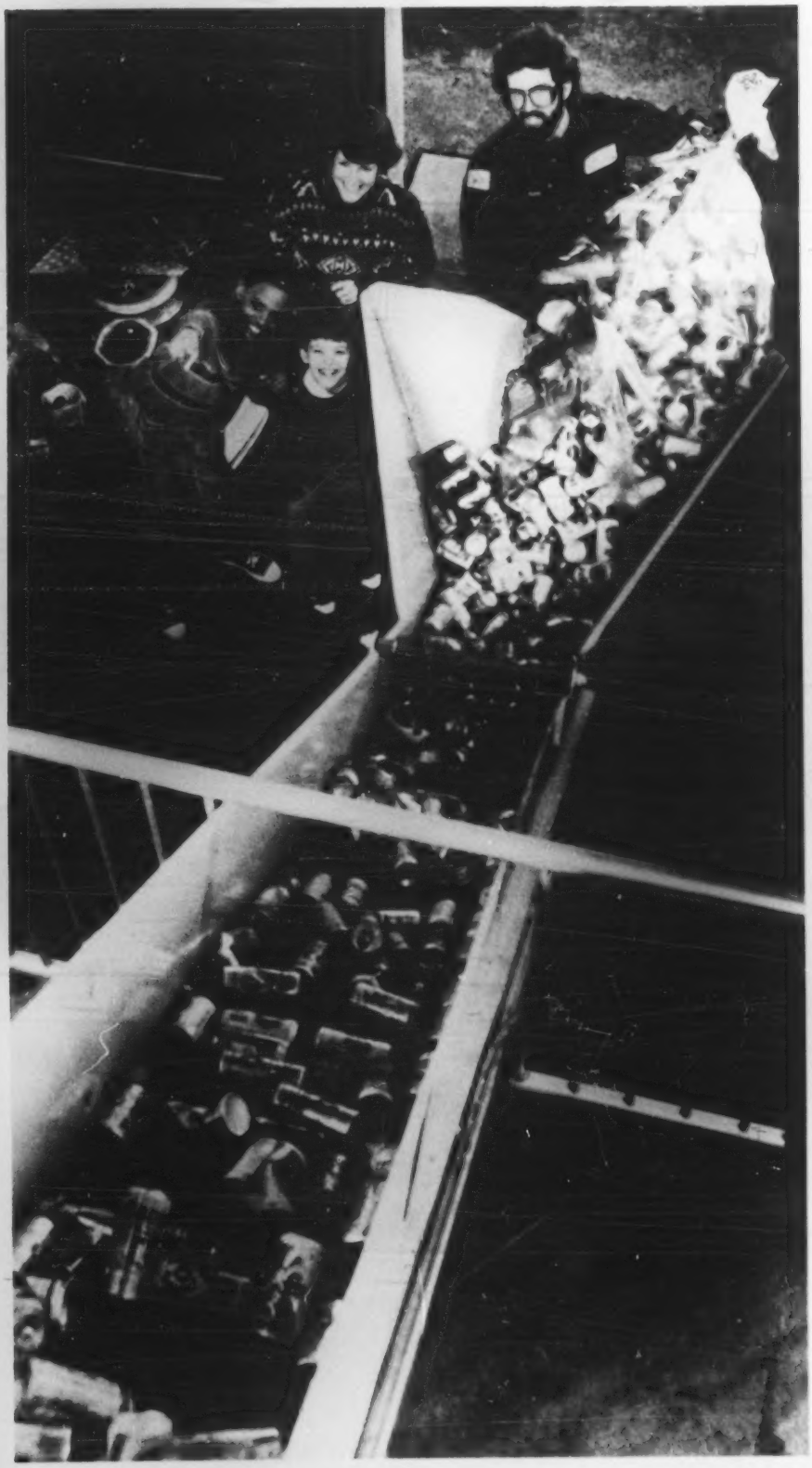
Introduction to Aluminum Statistics



ABOUT THE REVIEW

The Aluminum Association's Statistical Review for 1987 assembles in one place the most important statistical data available on the aluminum industry. It includes information on every cycle of the aluminum production process from primary aluminum to markets for finished goods.

The Aluminum Association, Inc., representing the United States aluminum industry, is the primary source for statistics, standards and other information on aluminum and the industry.

The Review is divided into five major sections: shipments, markets, supply, U.S. foreign trade, and world statistics. Each section is preceded by an introduction and description summary of the tables that follow. In addition each graph or table has a description and highlights. The Review shows detailed shipment figures for 23 separate product categories. A glossary of industry terms is appended as well.

Capsule Review

Millions of Pounds	1987	1986
Total Supply	15,201	14,671r
Primary Production	7,378	6,699
Primary Capacity (Year-end)	8,536	8,474
Shipments to Major Markets		
Building and Construction	3,162	3,157r
Transportation	3,109	3,025r
Consumer Durables	1,264	1,190r
Electrical	1,387	1,381r
Machinery & Equipment	882	845r
Containers & Packaging	4,524	4,247
Other	693	584r
Total Domestic Shipments	15,021	14,429r
Exports	1,255	911
Total Shipments	16,276	15,340r

r—Revised

In 1987, over 1.3 billion pounds of aluminum used beverage cans were collected in the U.S. representing 36.6 billion aluminum cans for a recycling rate of 50.5 percent.

1987 Highlights

15,021 million pounds of aluminum were shipped to U.S. markets in 1987, up 4.1 percent from the 1986 level of 14,429 million pounds. Aluminum exports of ingot and semi-fabricated products, increased 37.9 percent in 1987 to 1,256 million pounds.

Total aluminum shipments, including exports, rose in 1987 to level of 16,276 million pounds, an increase of 6.3 percent from 1986 shipments of 15,340 million pounds.

Total aluminum imports into the U.S. (including scrap) decreased to 4,172 million pounds in 1987, a 5.8 percent drop over 1986 levels. Imports of aluminum ingot totaled 2,746 million pounds in 1987, a 7.7 percent decrease from the 1986 imports of 2,974 million pounds. Total imports of aluminum mill products in 1987 were 1,005 million pounds, a 7.7 percent decrease from 1986 imports of 1,089 million pounds.

Consumer imports of mill products totalled 901 million pounds in 1987, were down 5.5 percent from 1986 and dropped to a 5.5 percent penetration of U.S. mill product consumption.

*"Net" shipments exclude intra-industry shipments for further fabrication. It is the most accurate measure of industry output to markets because it eliminates duplication. Reported receipts of aluminum for further processing are subtracted.

The **United States supply** of aluminum in 1987 rose 3.6 percent to a level of 15,201 million pounds. Domestic primary production increased 10.1 percent to 7,378 million pounds, imports of aluminum ingot and mill products were down 7.7 percent to 3,751 million pounds and domestic recovery from scrap accounted for 4,072 million pounds, a 4.2 percent increase from 1986.

Containers and Packaging continue to be the industry's largest market in 1987 with a volume of 4,524 million pounds and accounting for 27.8 percent of the total 1987 shipments. This market increased 6.5 percent over 1986 shipments of 4,247 million pounds.

The second largest market for 1987 was the **Building and Construction** market totaling 3,162 million pounds and accounting for 19.4 percent of the total shipments, increased 0.2 percent over 1986. The **Transportation** market 1987 shipments of 3,109 million pounds increased 2.8 percent over 1986 levels.

The **Electrical** market showed an increase of 0.4 percent from 1986 with 1987 shipments at 1,387 million pounds. **Consumer Durables** shipments rose 6.2 percent to 1,264 million pounds in 1987.

Shipments to the nonelectrical **Machinery and Equipment** market increased to 882 million pounds, a rise of 4.4 percent.

Acknowledgements

The data for this **REVIEW** were developed by the Statistical and Market Research Committee of the Aluminum Association, Inc. along with the cooperation of the following organizations: Can Manufacturers Institute; Bureau of the Census, U.S. Department of Commerce; and the Bureau of Mines, U.S. Department of the Interior.

The **Aluminum Statistical Review** for 1987 was compiled and edited by Nicholas A. Adams, Manager, Product and Market Statistics.

Statistical and Market Research Committee of the Aluminum Association, Inc.

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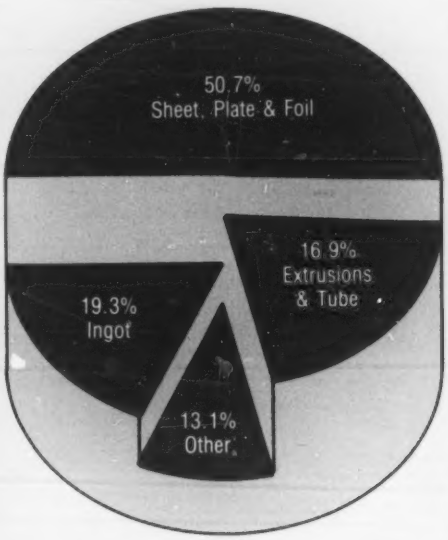
R.G. Beck	W.M. Schott
J. Long	R. Scott-Taggart
N. Cirilo	D.H. Spiegel
R. Hanson	R. Stedman
J. Leyan-Ealy	T.M. Stoepler

This edition covers in most tables the years 1977-1987. Data on the years 1960-1980 are available in a companion publication: **"Aluminum Statistical Review—Historical Supplement."** Contact the Aluminum Association for further information.

U.S. Aluminum Industry Shipments

Percentage Distribution by Major Products: 1987



Percentage Distribution by Major Products: 1986

*Other

Conductor	3.9 (4.1)
Rod, Bar, Wire	2.2 (2.1)
Forgings & Impacts	1.0 (0.9)
Powder	0.6 (0.6)

NOTE: 1986 percentages are shown in parentheses

U.S. INDUSTRY SHIPMENTS UP 8.3 PERCENT

Total net shipments in 1987 amounted to 15,375 million pounds, 6.9 percent more than the 14,386 million pounds shipped in 1986.

The adjacent pie chart shows that the largest product category of sheet, plate and foil represented 50.7 percent of total shipments in 1987 (48.8% in 1986). Ingot for castings, destructive uses and exports accounted for 19.3 percent (19.4% in 1986) and extruded products and tube shipments were 16.9 percent (17.8% in 1986) of total shipments.

Excluding net imports, sheet and plate and foil volume of 8,245 million pounds were up 10.1 percent from 1986. Extruded products and tube shipments totaled 2,755 million pounds, up 1.0 percent from 1986.

Total shipments to U.S. consumers at 15,229 million pounds were up 5.5 percent from the 1986 level of 14,429 million pounds. Exports increased 37.9 percent to a 1987 level of 1,256 million pounds.

DESCRIPTION:

Total aluminum industry shipments presented on the next page are net shipments to U.S. consumers and for export. To avoid duplication, the figures do not include any intra-industry shipments for further fabrication into mill products. Imported ingot and mill products shipped to U.S. consumers are included.

Net shipments of ingot include domestic and import shipments and represent primary and secondary ingot shipments for export, for castings and destructive uses. Net shipments of mill products are shown separately for domestic and import. Mill product imports to aluminum producers are not included in total industry shipments. These imports are further processed by the producer into another mill product which is included in the total.

Imports to consumers are included in total industry shipments. These consumers fabricate the aluminum into a finished product. Imported mill products are net of receipts by producers of mill products. Imported mill products data include reimports of metal exported for processing and returned for further processing.

The pie charts illustrate the distribution of net shipments of aluminum ingot and mill product groups during 1987 and 1986. They include net shipments of ingot and domestic mill products but exclude imported mill products, because import data are not available in the same detail as domestic shipments of mill products. The distribution is based on data shown on pages 6 and 7. The imported mill products are shown on page 5.

For information on years prior to 1977 see the Aluminum Statistical Review—Historical Supplement.

Total Industry Shipments

Millions of Pounds

Net Shipments	1987 % Total	1987 Amount	1986 % Total	1986 Amount	1987-1986 % Change	1977-1987 % Annual Growth
Total	100.0	16,276.0	100.0	15,339.9r	+6.1	+1.6
Ingot	19.3	3,141.0	19.4	2,969.8r	−5.7	+1.7
Mill Products						
U.S. Producer	75.1	12,233.9	74.4	11,416.4r	+7.2	+0.9
Consumer Imp.	5.5	901.1	6.2	953.7r	−5.5	+15.8
U.S. Exports	7.7	1,255.6	5.9	910.8	+37.9	+1.2
U.S. Consumers	92.2	15,020.4	94.1	14,429.2	+4.1	+1.6

Total Industry Shipments 1977-1987

Millions of Pounds

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
Net Shipments											
Total	16,276.0	15,339.9r	15,272.3r	15,521.3	14,153.2	12,505.1	13,814.4	14,351.0	14,867.3	14,425.3	12,986.0
Ingot	3,141.0	2,969.8r	3,364.7	3,579.5	3,044.8	3,090.3	3,236.4	3,723.8	3,287.0	2,672.3	2,388.3
Mill Products											
U.S. Producer	12,233.9	11,416.4r	11,091.5	11,075.9	10,577.5	9,026.8	10,337.8	10,484.9	11,230.4	11,346.0	10,442.9
Consumer Imp.	901.1	953.7r	816.1	865.9	530.8	388.0	240.2	142.3	349.9	407.0	154.8
U.S. Exports	1,255.6	910.8	1,204.2	1,076.4	1,240.9	1,294.7	1,370.0	2,193.3	1,022.9	747.4	712.2
U.S. Consumers[1]	15,020.4	14,429.2r	14,068.1r	14,444.9	12,912.3	11,210.4	12,444.4	12,157.7	13,844.4	13,677.9	12,273.8

Detail may not add to totals due to rounding.

SOURCES: Current Industrial Report Series M33-2.
Mill products, exports, imports: U.S. Department of Commerce, Bureau of The Census, Foreign Trade Division, and CIR Series M33-2.

(1) Shipments to consumers in the U.S. are calculated by subracting exports of ingot and mill products from total industry shipments. Includes no adjustment for inventories in the hands of consumers.

Mill Products Imports 1977-1987

Millions of Pounds

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
Total Imports[1]											
Total	1,005.1	1,088.9	1,020.7	1,089.7	618.3	455.6	303.9	168.1	426.3	484.5	164.8
Sheet & Plate	765.3	836.0	770.1	884.5	536.1	414.8	247.1	126.1	357.3	433.7	128.7
Rod & Bar	117.3	128.9	128.7	86.3	27.4	10.1	34.2	16.3	38.0	22.1	18.1
Other	122.5	123.9	121.9	118.9	54.9	30.7	22.6	25.7	31.0	28.7	18.0
Imports to Consumers[1]											
Total	901.1	953.7r	816.1	865.9	531.7	388.0	240.2	142.3	349.9	407.0	154.8
Sheet & Plate	732.6	798.4	680.3	746.6	477.4	357.7	205.6	115.7	317.0	371.0	124.7
Rod & Bar	54.8	51.3	24.1	5.8	9.3	1.2	12.3	9.1	2.2	9.7	12.4
Other	113.7	103.9r	111.7	113.5	45.1	29.2	22.3	17.5	30.7	26.3	17.7
Imports to Producers[2]											
Total	104.0	135.2r	204.6	223.8	86.7	67.6	63.7	25.8	76.4	77.5	10.0
Sheet & Plate	32.7	37.6	89.8	137.9	58.8	57.2	41.5	10.4	40.3	62.7	4.0
Rod & Bar	62.5	77.6	104.6	80.5	18.1	8.9	21.9	7.2	35.8	12.4	5.7
Other	8.8	20.0r	10.2	5.4	9.8	1.5	0.3	0.2	0.3	2.4	0.3

**Less than 50 thousand pounds.*

Detail may not add to totals due to rounding.

(1) Includes reimports of metal exported for processing and returned for further processing (TSUSA 806.30).

(2) Product detail estimated by Aluminum Association from published ranges.

(3) Annual growth rate calculated by straight line least squares method.

SOURCES: U.S. Department of Commerce, Bureau of The Census, Foreign Trade Division and CIR Series M33-2.

Shipments

Net Shipments of Ingot and Mill Products
Excludes Mill Product Imports to Consumers 1954-1987

Millions of Pounds

Year	Total aluminum	Total ingot	Primary ingot	Secondary ingot[3][4]	Extrusion ingot[3]	Total mill products	Sheet & Plate nonheat treatable	Sheet & Plate heat treatable	Foil	Forgings Impacts[2]	
1954	3,006.8	920.2	425.7	494.5	—	2,086.6	768.2	243.6	153.3		
1955	3,997.2	1,205.4	509.9	695.5	—	2,791.8	1,049.6	295.0	198.2	70.3	
1956	4,109.3	1,223.5	520.1	703.4	—	2,885.8	1,050.6	327.0	190.5	75.7	
1957	3,839.2	1,161.6	458.2	703.4	—	2,677.6	943.8	246.7	204.0	64.3	
1958	3,571.1	974.0	368.6	605.4	—	2,597.1	944.4	209.1	199.6	50.8	
1959	4,961.1	1,575.0	751.4	803.4	20.2	3,386.1	1,284.6	231.3	252.6	53.8	
1960	4,657.7	1,608.6	852.3	665.2	91.1	3,049.1	1,203.4	184.8	249.0	50.1	
1961	4,881.7	1,536.6	690.7	701.9	144.0	3,345.1	1,256.3	237.0	270.6	56.4	
							Sheet		Plate		
							NHT	HT	NHT	HT	
1962	5,669.8	1,858.6	768.9	848.7	241.0	3,811.3	1,361.8	157.3	108.9	82.9	r297.4	79.4	
1963	6,289.7	2,032.6	859.2	885.9	287.5	4,257.2	1,626.5	165.2	126.5	77.1	322.3	84.0	
1964	7,063.5	2,228.6	946.5	995.1	287.0	4,834.9	1,903.0	167.8	124.2	79.0	356.7	88.4	
1965	8,016.7	2,337.3	1,069.3	1,126.9	141.1	5,679.4	2,179.8	223.0	109.0	97.0	395.7	96.4	
1966	8,797.6	2,340.1	987.2	1,190.4	162.6	6,457.5	2,382.4	281.5	125.7	147.2	432.2	139.2	
1967	8,836.9	2,486.4	1,063.6	1,189.1	233.7	6,350.6	2,385.6	227.4	119.5	135.6	449.4	165.2	
1968	9,861.8	2,694.8	1,154.2	1,284.3	256.3	7,167.0	2,910.8	250.2	103.5	140.0	508.7	105.7	62.1
1969	10,717.5	3,051.2	1,569.4	1,264.9	216.9	7,666.3	3,299.3	200.8	105.8	120.9	559.9	97.3	59.3
1970	9,952.5	2,594.5	1,307.0	1,126.0	161.5	7,358.0	3,376.4	126.7	94.1	91.4	558.7	71.4	49.0
1971	10,267.3	2,428.5	1,004.5	1,187.7	236.3	7,838.8	3,691.1	121.6	75.6	87.8	585.6	69.5	28.7
1972	11,880.0	2,633.8	1,000.7	1,467.9	165.2	9,246.2	4,431.4	160.6	78.8	97.1	673.2	95.3	27.5
1973	14,568.2	3,668.4	1,615.7	1,757.8	294.9	10,899.9	5,308.7	203.3	109.7	119.6	774.4	114.8	27.6
1974	13,639.5	3,178.4	1,503.5	1,457.4	217.4	10,461.1	5,087.9	216.5	157.2	164.6	748.2	112.8	25.5
1975	9,804.2	2,377.7	1,275.0	1,019.1	83.5	7,426.6	3,676.8	121.0	143.2	111.2	611.8	82.8	14.4
1976	12,245.6	2,540.1	1,108.5	1,227.6	203.9	9,705.6	5,167.0	191.9	108.4	106.5	772.3	83.1	17.1
1977	12,831.3	2,388.3	768.5	1,443.6	176.2	10,443.0	5,505.5	300.4	104.2	130.3	805.6	105.7	15.6
1978	14,018.4	2,672.3	923.3	1,658.7	90.3	11,346.0	5,785.4	350.0	116.1	157.1	876.6	115.7	20.7
1979	14,517.3	3,287.0	1,281.2	1,830.7	175.1	11,230.3	5,632.4	365.4	114.9	183.5	887.0	127.4	31.4
1980	14,208.7	3,723.8	1,958.3	1,582.1	183.5	10,484.9	5,301.8	247.3	92.2	220.9	830.4	107.2	26.0
1981	13,574.2	3,236.4	1,485.3	1,704.5	46.6	10,337.8	5,504.0	200.9	106.1	167.1	850.4	109.2	29.8
1982	12,117.2	3,090.3	1,508.0	1,517.3	65.1	9,026.8	4,976.9	150.1	70.9	131.2	731.2	78.9	25.3
1983	13,622.4	3,044.8	1,438.5	1,499.2	107.2	10,577.5	5,952.4	181.0	57.5	145.4	826.4	88.6	27.6
1984	14,655.4	3,579.5	1,782.6	1,768.2	28.7	11,075.9	5,866.5	221.2	81.5	173.4	852.7	114.9	29.3
1985	14,456.2	3,364.7		3,148.9	215.9	11,091.5	5,964.3	220.1	74.4	183.4	812.8	108.3	40.4
1986	14,386.2r	2,969.8r		2,667.9r	301.9	11,416.4r	6,135.5	246.1	72.7	175.1	860.5	97.3	47.2
1987	15,374.9	3,141.0		3,221.2	80.2	12,233.9	6,862.5	247.7	74.1	194.3	866.3	108.3	50.0

(1) A small amount of rolled structural shapes is included with the rod & bar in 1946-1961 and with extruded shapes in subsequent years.

(2) Through 1954 forgings and impacts were not reported. They were included in appropriate forging stock product categories, mainly rolled rod & bar instead of forgings.

(3) 1952-1958 Secondary ingot included extrusion ingot.

(4) Secondary ingot includes shipments by integrated companies, secondary smelters and imports.

Detail may not add to totals due to rounding.

Millions of Pounds

Rod & bar[7]	Extruded Shapes: Soft alloys	Extruded Shapes: Hard alloys	Tubing: Soft alloys	Tubing: Hard alloys	Wire bare: Non Conductor	Wire bare: Conductor	ACSR & bare cable	Ins. or cov. wire & cable	Powder and Paste
143.7	385.8	63.8	53.5	10.1	41.8	3.8	147.1	25.0	46.9
			Drawn tube	Welded tube					
109.9	636.6	45.8	67.2	25.5	57.7	4.0	156.9	39.5	35.7
117.8	641.0	63.5	60.2	27.6	54.4	5.5	187.4	56.1	28.4
					Wire, bare				
116.9	645.6	61.2	56.2	26.7	50.4		181.5	50.3	28.2
75.6	693.5	49.8	59.8	18.7	44.2		174.8	51.0	25.6
124.6	931.3	47.9	72.9	30.0	64.6		196.7	60.8	34.9
92.9	812.1	38.9	60.3	25.9	55.4		183.1	60.4	32.8
100.8	884.1	50.5	64.0	35.4	52.6		232.8	68.6	35.9

	Extruded rod & bar: Soft	Extruded rod & bar: Hard	Extruded shapes[7]: Soft	Extruded shapes[7]: Hard	Extruded pipe & tube: Soft	Extruded pipe & tube: Hard						
136.4	54.8	12.6	782.4	44.8	139.5	5.2	78.4		40.7	55.0	253.2	76.9	43.7
121.0	61.1	10.2	870.7	54.2	150.3	6.1	65.5		52.1	57.6	272.3	89.2	44.8
							Drawn tube						
							Soft	Hard					
146.8	70.5	12.6	1,016.4	41.0	158.2	4.3	60.3	6.6	77.4	63.1	309.2	103.2	46.3
159.7	68.2	14.8	1,224.3	57.5	174.9	2.7	78.8	3.7	93.7	82.6	429.3	129.4	58.8
151.9	67.2	21.5	1,335.3	97.7	190.6	6.9	92.2	7.5	91.2	103.2	507.4	165.3	111.4
143.0	43.6	18.4	1,222.7	84.5	157.4	8.5	81.7	7.5	87.8	97.7	506.2	174.7	234.0
130.0	37.3	21.1	1,363.0	70.0	170.2	11.8	84.6	8.0	106.9	100.4	492.2	214.0	276.4
144.3	42.2	21.1	1,460.2	72.3	196.1		81.8	7.2	101.6	94.7	475.1	250.5	276.0
110.0	39.7	16.8	1,369.2	43.4	176.9		80.7	3.5	92.5	93.5	499.5	260.2	204.5
102.2	37.7	16.4	1,550.6	42.1	186.1		81.6	2.7	96.3	96.8	481.8	317.1	167.5
181.5	40.5	16.6	1,838.4	44.6	193.8		89.1	3.7	116.6	106.6	453.6	371.0	226.4
289.4	48.3	18.9	2,038.6	72.2	225.6		105.7	4.6	121.7	124.1	490.2	445.2	257.4
268.6	48.8	14.9	1,807.3	66.4	219.4		110.4		116.8	131.0	541.4	446.3	177.2
185.8	55.7	12.1	1,264.3	47.7	135.9		65.7		61.6	66.3	425.1	246.3	98.9
279.9[6]	69.9		1,661.8	28.9	188.8		98.0		94.2	79.9[6]	321.4	304.1	132.4
145.5[6]	82.5		1,845.5	65.4	183.8		104.3		114.5	85.3[6]	351.0	376.7	121.1[7]
266.5	113.7		2,021.9	93.2	176.8		106.7		110.4	89.3	390.3	419.6	135.9
300.0	100.9		1,990.1	104.2	151.9		95.9		83.5	91.3	417.4	427.5	125.6
377.6	113.0		1,791.2	107.3	140.7		80.7		96.8	72.2	399.8	363.2	116.6
272.0	102.9		1,732.9	69.9	127.3r		74.6		114.2	68.3	378.7	321.6r	107.7
190.4	74.5	19.4	1,568.1	48.2	89.5	11.4	60.9		47.9	50.8	345.2	276.0	80.0
187.1	89.2	25.4	1,859.5	55.2	122.2	14.3	65.2		56.4	54.9	357.4	333.3	78.7
201.2	91.8	31.0	2,138.8	88.0	154.1	22.6	56.4		59.9	54.3	346.0	393.8	98.7

Drawing Stock	Rod & bar rolled or extruded: Soft	Rod & bar rolled or extruded: Hard			Pipe & tube extruded or drawn: Soft	Pipe & tube extruded or drawn: Hard				
27.2	81.3	110.0	2,285.7	67.5	238.6	10.6	(8)	86.2	277.0	396.2	107.3
8.9	99.2	115.7	2,457.7r	72.0	269.3		(8)	104.8	233.8	396.1	96.2
24.6	109.2	113.5	2,411.9	70.2	272.8		(8)	110.7	219.9	407.7	92.1

(5) Extrusion ingot includes primary and secondary metal shipments by integrated companies, non-integrated companies, secondary smelters and imports includes exports and overstated domestic shipments due to insufficient reporting of receipts.

(6) Bare wire estimated by the Aluminum Association from part year reporting.

(7) Powder, n.e.c., included for only nine months of 1976 and excluded entirely for 1977.

(8) Welded tube included with aluminum sheet

SOURCE: U.S. Department of Commerce, Bureau of The Census, Industry and Trade Administration, Bureau of Domestic Business Development, Office of Basic Industries—Current Industrial Reports since 1960: Facts for Industry 1959 and earlier.

General Line Distributor Shipments

DISTRIBUTOR SHARE 31.7 PERCENT

During 1987 distributors captured 31.7 percent of their available market. Total U.S. shipments of Mill products, excluding direct mill uses, was 5,039 million pounds up 9.2 percent from 1986. Distributor shipments at an estimated 1,597 million pounds were up 9.0 percent from a year ago.

DESCRIPTION:

The table shows general line distributor shipments for the years 1977-1987. Also shown are estimates of the total market in which general line distributors are participants. This is labeled Total U.S. Shipments, excluding Direct Mill Uses.

For information on years prior to 1977, see the Aluminum Statistical Review—Historical Supplement.

Direct mill uses are excluded because these end product manufacturers do not buy from distributors. In some cases producers make the final products. These uses include residential siding, extruded shapes for all building products, furniture tube, conduit, irrigation pipe, can stock and exports. Total U.S. shipments excluding direct mill uses thus differ from total aluminum industry shipments of mill products by the amount of direct mill uses and products not generally handled by general line distributors (foil, conductor, forgings, powder).

General Line Distributor Shipments 1977-1987

Millions of pounds

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
Distributor Shipments											
Total	1,597	1,465	1,389	1,411	1,285	948	1,200	1,274	1,359	1,319	1,212
Sheet	1,068	959	907	941r	864r	601r	783r	751r	820r	819r	765r
Plate	160	155	152	146	119	104	120	155	152	138	112
Rod, bar & wire	157	152	138	134	131	106	140	161	176	161	137
Extruded shapes	151	144	138	132	121	94	107	151	149	138	136
Pipe & tube	61	55	54	58r	50r	43r	50r	56r	62r	63r	62r
Total U.S. Shipments excluding Direct Mill Uses											
Total	5,039	4,615r	4,377r	4,556r	4,077r	3,160r	3,816r	3,819r	4,696r	5,093r	4,430r
Sheet	3,121	2,812r	2,674r	2,839r	2,738r	2,018r	2,470r	2,328	2,970r	3,377r	3,002r
Plate	270	270	273	256	190	189	240	266	281	253	215
Rod, bar & wire	391	366	318	384	331	275	331	379	407	398	286
Extruded shapes	1,038	948	914	890	675	562r	632	699r	859	864	741
Pipe & tube	219	219r	198r	187r	145r	116r	143r	147r	177r	201r	186r
Distributor share (per cent)											
Total	31.7	31.7r	31.7r	31.0r	31.5r	30.0r	31.4r	33.4r	28.9r	25.9r	27.4r
Sheet	34.2	34.1r	33.9r	33.1r	31.6r	29.8r	31.7r	32.3r	27.6r	24.3r	25.5r
Plate	59.3	57.4	55.7	57.0	62.6	55.0	50.0	58.3	54.1	54.5	52.1
Rod, bar & wire	40.2	41.5	43.4	34.9	39.8r	38.5r	42.3	42.5	43.0r	40.5r	47.9
Extruded shapes	14.5	15.2	15.1	14.8	17.9	16.7	16.9	21.6r	17.3r	16.0	18.4
Pipe & tube	27.9	25.1r	27.3r	31.0r	34.5r	37.1r	35.0r	38.1r	35.0r	31.3r	33.3r

NOTE: In this table rod, bar and wire includes extruded rod and bar; pipe and tube includes extruded, drawn and welded pipe and tube.
SOURCE: Estimated by the Statistical and Market Research Committee of the Aluminum Association.

Shipments of Castings

SHIPMENTS DOWN 7.8 PERCENT

There were 2,055 million pounds shipped during 1987 versus the prior year's 2,187 million pounds, a decrease of 7.8 percent from the previous year.

This table shows shipments of aluminum castings separately for sand, permanent mold and die castings, both for sale and own use through the year 1983. Permanent mold shipments for sale and own use were combined in 1984. Own use shipments are for captive consumption in the producers' end products.

Ingot requirements for the castings shipments shown in this table are part of the net ingot shipments shown on page 5 & 6.

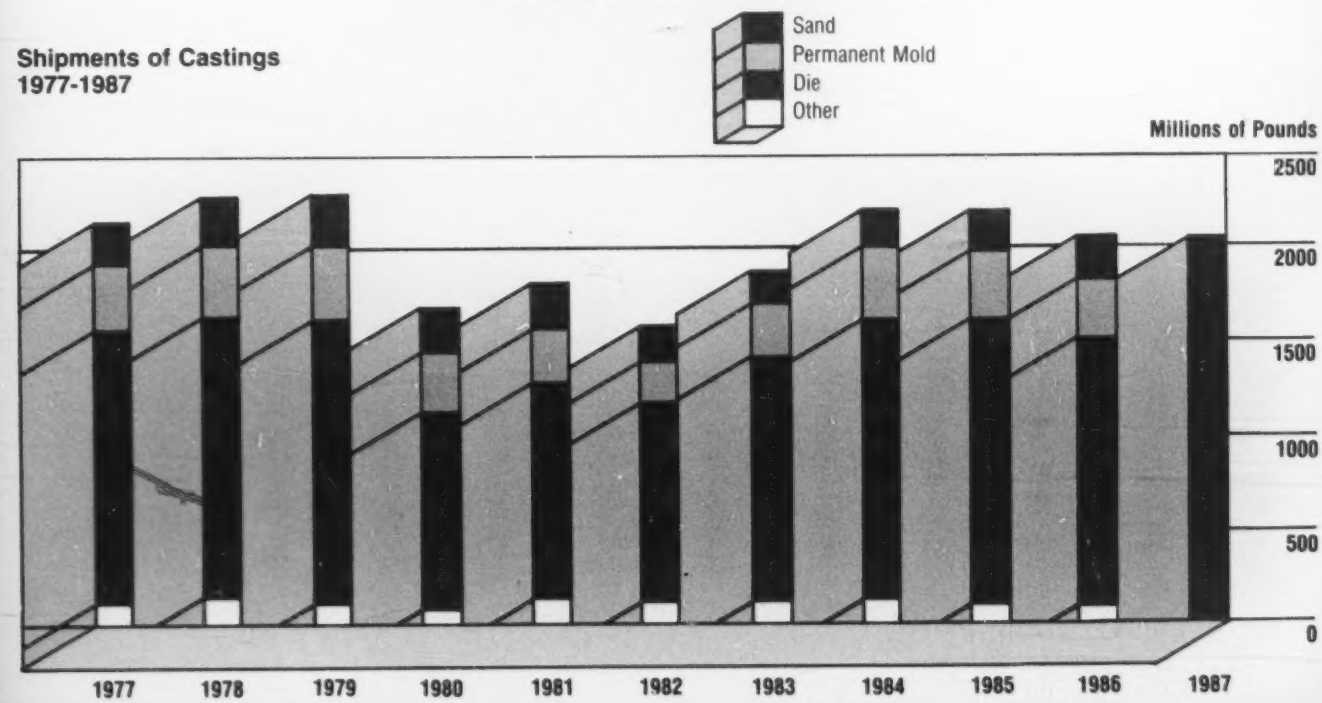
Shipments of Castings
1963-1987

Millions of Pounds

Year*	Total Castings(1)	Sand Castings for sale	Sand Castings own use	Permanent and Semi-permanent Mold Castings for sale	Permanent and Semi-permanent Mold Castings own use	Die Castings for sale	Die Castings own use
1963	1,209.3	160.1	42.1	169.6	159.3	281.2	390.4
1964	1,257.2	168.9	60.6	179.3	137.4	312.6	386.3
1965	1,416.7	193.6	72.7	185.2	134.8	391.3	431.7
1966	1,654.1	220.6	68.0	233.3	156.1	478.7	477.8
1967	1,488.7	155.3	74.1	203.6	126.8	472.2	434.7
1968	1,615.2	148.9	58.7	201.5	158.7	510.5	518.3
1969	1,731.0	155.8	59.5	245.5	160.0	510.9	573.7
1970	1,541.9	127.0	65.5	188.7	132.3	472.3	530.7
1971	1,616.8	122.7	62.4	200.2	118.3	500.5	595.4
1972	1,915.6	158.8	62.4	236.6	143.8	595.8	685.8
1973	2,113.2	184.1	65.9	247.6	147.8	680.0	735.4
1974	1,855.4	200.4	58.1	220.1	114.6	617.3	585.5
1975	1,455.2	146.5	42.9	159.7	90.7	461.4	496.1
1976	1,971.1	170.3	41.3	203.4	121.8	606.5	721.7
1977	2,153.4	186.6	33.3	228.0	145.2	682.6	763.0
1978	2,286.8	210.9	34.9	238.5	148.6	799.8	718.1
1979	2,302.8	245.5	33.2	265.4	142.2	853.1	663.6
1980	1,689.8	200.0	33.1	217.2	105.9	633.8	429.2
1981	1,819.8	207.3	30.8	209.2	82.3	704.1	452.7
1982	1,605.3	159.0	19.2	161.9	77.2	624.2	434.0
1983	1,898.1	156.3	10.2	211.8	90.5	812.9	493.3
1984	2,232.8	183.3	12.6	388.7		932.9	583.0
1985	2,229.8r	188.7	15.3	390.7r		923.5	596.8r
1986	2,186.7r	180.2r	25.6r	391.0r		893.8r	592.8r
1987	2,055.4	na	na	na		na	na

(1) Total includes small amounts of "other" castings not shown separately
r-Revised
SOURCE: U.S. Department of Commerce, Bureau of the Census, Industry Division
**Prior to 1963 consult the Aluminum Statistical Review—Historical Supplement.*
p—Preliminary
na—not available at publication

Shipments of Castings
1977-1987



Market Shipment Highlights—1987

SHIPMENTS UP 6.1 PERCENT
Total industry shipments of aluminum in 1987 increased to level of 16,276 million pounds, up 6.1 percent from the volume of 15,340 million pounds in 1986. Total domestic shipments increased 4.1 percent and exports rose 37.8 percent.

The largest increase occurred in the area of Containers and Packaging, up 6.5 percent from 1986.

Containers and Packaging also continues as the industry's largest market in 1987 with a volume of 4,524 million pounds, or 27.8 percent of total shipments. Increased shipments for metal cans at 3,732 million pounds led this market's 6.5 percent growth over 1986. Semi-rigid food containers household and institutional foil, caps & closures, collapsible tubes and many flexible packaging uses are other important components in this market.

Building and Construction, at 3,162 million pounds, increased 0.2 percent from a 1986 volume of 3,157 million pounds. Included in this market are residential, industrial, commercial, farm and highway applications as well as mobile homes.

Shipments to the **Transportation** market increased to a volume of 3,109 million pounds, 2.8 percent less than in 1986. Included in this market are passenger cars, trucks and buses, trailers and semitrailers and recreational vehicles.

Electrical market applications showed a 0.4 percent rise to 1,387 million pound volume in 1987. Wire and cable products fell 0.6 percent.

Shipments to the **Consumer Durable** goods market experienced a 6.2 percent increase to a volume of 1,264 million pounds. Uses such as appliances, and air conditioning, showed increases.

Shipments to the nonelectrical **Machinery and Equipment** market of 882 million pounds increased 4.4% over 1986 levels and accounted for 5.4 percent of the total. Uses include agricultural, construction and industrial machinery, irrigation pipe, ladders, fasteners and other general industrial equipment.

Exports of aluminum totaling 1,255 million pounds jumped 37.8 percent from 1986 levels and accounted for 7.7 percent of total shipments.

The **average annual growth rate*** for aluminum shipments in the 1977-1987 period was 1.5 percent.

DESCRIPTION:
The Statistical and Market Research Committee of the Aluminum Association, Inc. has developed an annual breakdown of total aluminum industry shipments by major market since 1960. End use data on U.S. aluminum shipments are not available from government sources on a regular basis. Aluminum consumption figures for some industries are published by the U.S. Department of Commerce in the Census of Manufacturers. The most recent such Census covers the year 1982.

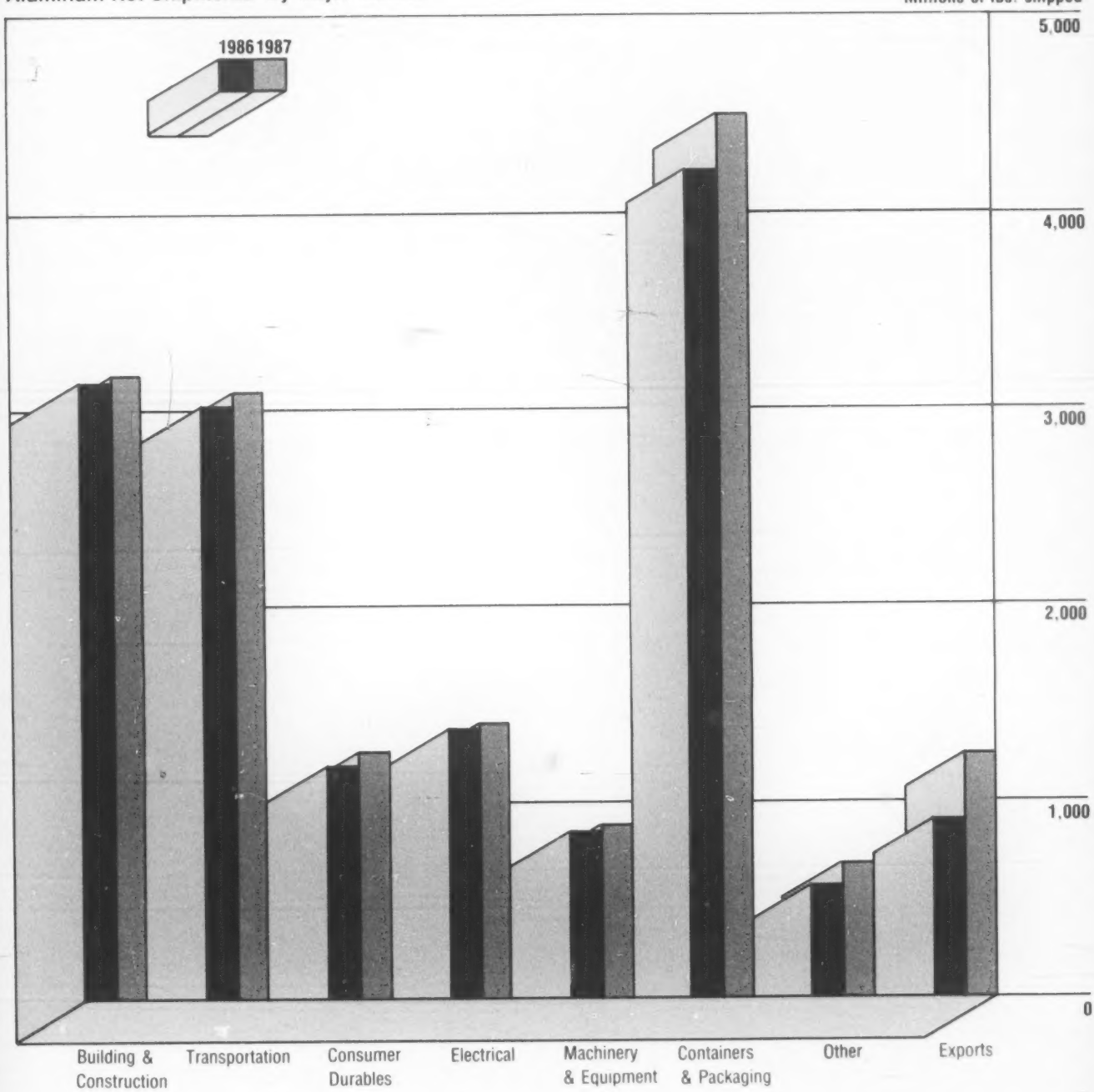
In the United States the aluminum industry has identified its major markets as building and construction, transportation, consumer durables, electrical, machinery and equipment, containers and packaging, exports and other end uses. Each of these major markets has a wide range of end uses within it.

Tables on pages 13-17 show considerable detail on the major markets for 1977-1987. Page 20 also depict trends for 1977-1987 in selected important aluminum uses.

For information on years prior to 1977 see the Aluminum Statistical Review—Historical Supplement.

(*) Annual growth rate calculated by straight line least squares method

Aluminum Net Shipments* by Major Market



Shipments by Major Market

Major Market	1987 % Distribution	1987 Amount	1986 % Distribution	1986 Amount	1987-1986 % Change	1977-1987 % Annual Growth
Building & construction	19.4	3,162	20.6	3,157r	+0.2	+0.4
Transportation	19.1	3,109	19.7	3,025r	+2.8	+0.7
Consumer durables	7.8	1,264	7.8	1,190r	+6.2	+1.2
Electrical	8.5	1,387	9.0	1,381r	+0.4	−0.5
Machinery & equipment	5.4	882	5.5	845r	+4.4	−0.7
Containers & packaging	27.8	4,524	27.7	4,247	+6.5	+4.4
Other (inc. statistical adjustment)**	4.3	693	3.8	584r	+18.7	+3.4
Domestic, total	92.3	15,021	94.1	14,429r	+4.1	+1.5
Exports	7.7	1,255	5.9	911	+37.8	+1.2
INDUSTRY TOTAL	100.0	16,276	100.0	15,340r	+6.1	+1.5

N.A. Not applicable

r — Revised

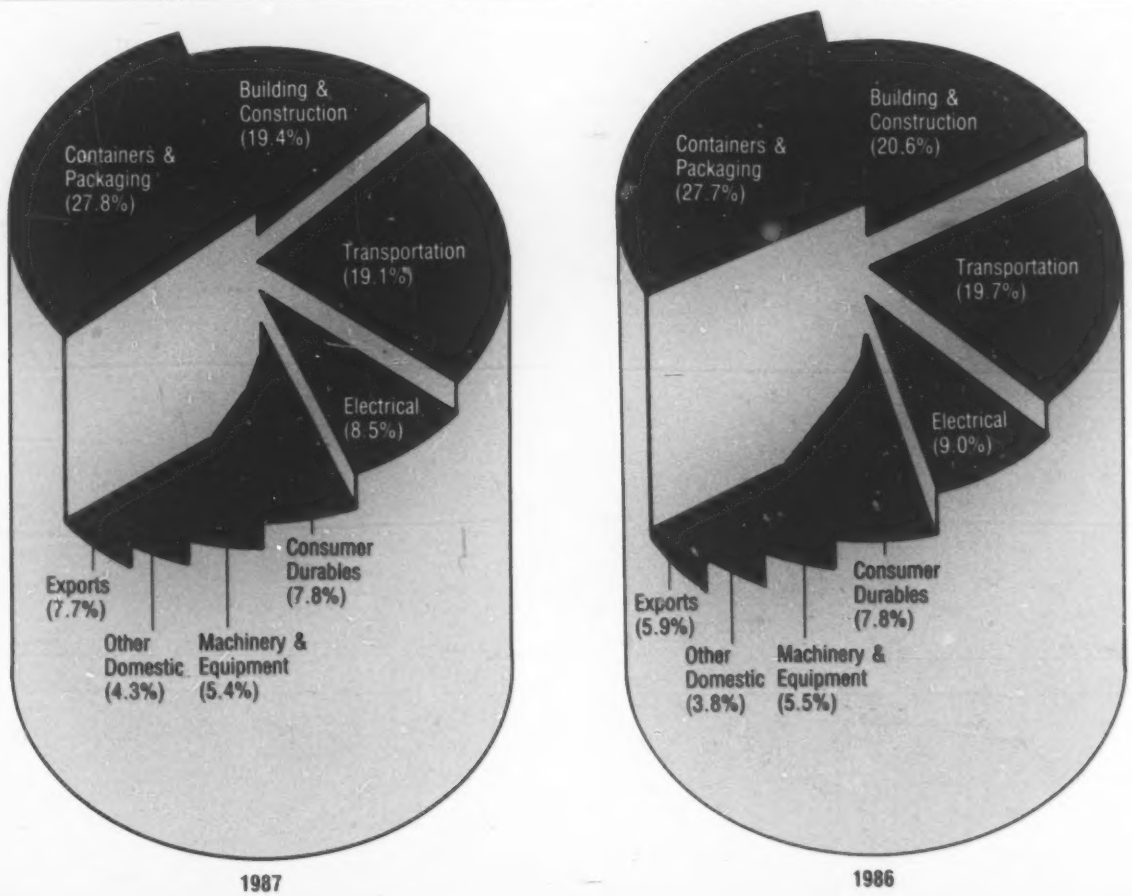
* "Net Shipments" exclude intra-industry shipments for further fabrication. It is the most accurate measure of industry output to markets because it eliminates duplication. Reported receipts of aluminum for further processing are eliminated.

** "Statistical Adjustment" accounts for net shipments of aluminum reported by the Bureau of the Census which the Aluminum Association believes were either over or understated in the amounts indicated due to excessive or insufficient reporting. It also includes otherwise unpublished Census revisions. The addition of the statistical adjustments reconciles the amounts reported by the Bureau of the Census with the net-shipments that the Aluminum Association feels are more correct.

a — Annual growth rate calculated by straight line least squares method

SOURCE: Estimated by the Statistical and Market Research Committee of the Aluminum Association, Inc.

Distribution of Aluminum Net Shipments* by Major Market



Product Net Shipments* by Major Market
1977-1987

Millions of pounds

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
Total Aluminum											
Building & construction	3,162	3,157r	3,032	2,866	2,870	2,257	2,553	2,624	3,058	3,226	3,010
Transportation	3,109	3,025r	3,049	3,083	2,427	1,836	2,204	2,247	3,120	3,157	2,913
Consumer durables	1,264	1,190r	1,066	1,106	1,054	822	1,000	892	1,055	1,205	1,077
Electrical	1,387	1,381r	1,416	1,502	1,298	1,157	1,351	1,405	1,588	1,502	1,362
Machinery & equipment	882	845r	832	832	779	704	881	844	985	1,056	928
Containers & packaging	4,524	4,247	4,105	4,031	3,918	3,568	3,512	3,334	3,223	3,141	2,780
Other	577	555r	583	614	576	526	645	600	652	660	597
**Statistical adjustment	+116	+29r	−14	+411	−10	+340	+298	+212	+163	−269	−394
Domestic, total	15,021	14,429r	14,069	14,445	12,912	11,210	12,444	12,158	13,844	13,678	12,273
Exports	1,255	911	1,204	1,076	1,241	1,295	1,370	2,193	1,023	747	713
Aluminum Total	16,276	15,340r	15,273	15,521	14,153	12,505	13,814	14,351	14,867	14,425	12,986
Ingot (1)											
Building & construction	92	107r	105	102	91	86	90	86	114	109	110
Transportation	1,286	1,348r	1,415	1,420	1,172	888	1,017	960	1,349	1,311	1,260
Consumer durables	287	306r	301	301	275	259	291	265	350	374	351
Electrical	187	197r	196	196	170	165	190	176	224	213	198
Machinery & equipment	292	299r	295	290	256	249	293	274	354	363	311
Containers & packaging	5	7	12	18	20	15	22	20	15	11	9
Other	237	234r	255	258	248	227	313	294	343	344	312
**Statistical adjustment	+127	−r	−	+400	−	+384	+314	+204	+119	−306	−367
Domestic, total	2,513	2,498r	2,579	2,985	2,132	2,273	2,530	2,279	2,868	2,419	2,184
Exports	628	472	786	594	813	817	706	1,445	419	253	204
Ingot Total	3,141	2,970r	3,365	3,579	3,045	3,090	3,236	3,724	3,287	2,672	2,388
Mill Products											
Building & construction	3,070	3,050	2,927	2,764	2,779	2,171	2,463	2,538	2,944	3,117	2,900
Transportation	1,823	1,677	1,634	1,663	1,255	948	1,187	1,287	1,771	1,846	1,653
Consumer durables	977	884	765	805	779	563	709	627	705	831	726
Electrical	1,200	1,184	1,220	1,306	1,128	992	1,161	1,229	1,364	1,289	1,164
Machinery & equipment	590	546	537	542	523	455	588	570	631	693	617
Containers & packaging	4,519	4,240	4,093	4,013	3,898	3,553	3,490	3,314	3,208	3,130	2,771
Other	340	321r	328	356	328	299	332	306	309	316	285
**Statistical adjustment	−11	+29	−14	+11	−10	−44	−16	+8	+44	+37	−27
Domestic, total	12,508	11,931r	11,490	11,460	10,680	8,937	9,914	9,879	10,976	11,259	10,089
Exports	627	439	418	482	428	478	664	748	604	494	509
Mill Products Total	13,135	12,370r	11,908	11,942	11,108	9,415	10,578	10,627	11,580	11,753	10,598

NOTE: Total mill products are net shipments of aluminum mill products as reported by domestic producers to the U.S. Department of Commerce, plus imported mill products, less receipts of these imports by domestic producers.

Footnotes: See page 17.

Product Net Shipments* by Major Market

Product Net Shipments* by Major Market 1977-1987

Millions of Pounds

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
Sheet											
Building & construction	1,501	1,401	1,350	1,295	1,424	1,022	1,190	1,250	1,597	1,749	1,611
Transportation	792	712	676	720	567	386	499	499	824	932	865
Consumer durables	532	476	418	411	437	295	380	333	353	424	375
Electrical	266	243	243	264	218	186	242	199	243	239	229
Machinery & equipment	318	290	288	285	285	229	282	258	267	313	265
Containers & packaging	3,868	3,626	3,509	3,395	3,275	2,977	2,869	2,693	2,559	2,488	2,169
Other	82	73	66	80	82	65	74	64	74	82	64
**Statistical adjustment	−20	−23	−24	−10	+15	+15	−4	−11	+11	+8	+28
Domestic, total	7,339	6,798	6,526	6,440	6,303	5,175	5,532	5,285	5,928	6,235	5,606
Exports	469	337	303	373	296	296	368	375	374	265	323
Sheet Total (4)	7,808	7,135	6,829	6,813	6,599	5,471	5,900	5,660	6,302	6,500	5,929
Plate											
Building & construction	1	1	1	1	1	1	1	1	1	1	1
Transportation	224	227	238	224	155	151	179	216	220	190	160
Consumer durables	1	1	1	1	1	1	1	1	1	1	1
Electrical	4	5	4	4	4	4	18	5	10	10	7
Machinery & equipment	22	19	18	21	16	18	29	30	37	41	35
Containers & packaging	—	—	—	—	—	—	—	—	—	—	—
Other	18	17	16	13	13	14	12	13	12	10	11
**Statistical adjustment	—	—	−5	−8	—	—	—	—	—	—	—
Domestic, total	270	270	273	256	190	189	240	266	281	253	215
Exports	34	23	26	30	23	27	43	51	30	27	21
Plate Total	304	293	299	286	213	216	283	317	311	280	236
Foil											
Building & construction	42	48	46	38	38	26	35	29	38	37	33
Transportation	51	52	52	49	45	29	32	31	41	45	38
Consumer durables	150	131	115	134	106	77	112	84	112	122	95
Electrical	8	11	13	20	22	19	25	23	30	27	25
Machinery & equipment	14	14	15	17	16	14	17	16	20	21	14
Containers & packaging	648	611	580	613	613	570	614	614	640	633	597
Other	7	9	7	7	5	3	8	5	3	1	1
**Statistical adjustment	−25	+23	+25	+7	—	—	—	—	—	—	—
Domestic, total	895	899	853	885	845	738	843	802	884	886	803
Exports	32	13	12	12	11	13	21	38	21	12	13
Foil Total	927	912	865	897	856	751	864	840	905	898	816
Extruded Shapes											
Building & construction	1,432	1,506	1,432	1,334	1,233	1,045	1,163	1,176	1,215	1,235	1,163
Transportation	540	488	470	479	345	270	325	390	499	491	427
Consumer durables	191	183	151	134	103	79	88	96	117	133	106
Electrical	119	114	119	110	74	71	76	88	106	101	89
Machinery & equipment	116	106	106	90	75	71	80	88	108	115	88
Containers & packaging	—	—	—	1	3	—	—	—	1	—	—
Other	72	55r	68	76	75	72	63	37	28	24	31
**Statistical adjustment	—	—	—	—	—	—	—	—	—	—	—
Domestic, total	2,470	2,452r	2,346	2,224	1,908	1,608	1,795	1,875	2,074	2,099	1,904
Exports	28	16	16	11	10	9	9	25	22	17	9
Extruded Shapes Total	2,498	2,468r	2,362	2,235	1,918	1,617	1,804	1,900	2,096	2,116	1,913

Product Net Shipments* by Major Market
1977-1987

Millions of Pounds

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
Extruded Pipe & Tube											
Building & construction	32	35	37	33	25	31	23	23	31	29	31
Transportation	54	45	49	35	26	16	20	16	18	24	21
Consumer durables	75	68	56	44	31	25	22	24	21	28	22
Electrical	86	98	89	67	59	49	51	62	37	41	44
Machinery & equipment	33	36	29	15	14	16	21	26	29	35	45
Containers & packaging	—	—	—	—	—	—	—	—	—	—	—
Other	8	11	8	7	6	3	4	4	2	2	2
**Statistical adjustment	−20	−22	−22	−24	−30	−50	−27	−29	—	—	—
Domestic, total	268	273	246	177	131	90	114	126	138	159	165
Exports	15	10	10	9	9	12	14	15	15	18	20
Extruded Pipe & Tube Total (3)	283	283	256	186	140	102r	128	141	153	177	185
Drawn Tube											
Building & construction				3	3	2	3	3	3	3	4
Transportation				9	6	5	8	11	17	18	17
Consumer durables				17	22	21	28	28	34	40	40
Electrical				8	9	9	9	10	10	13	13
Machinery & equipment				14	17	17	19	20	21	21	20
Containers & packaging				—	—	—	—	—	—	1	—
Other				4	7	6	7	8	10	10	9
**Statistical adjustment				—	—	—	—	—	—	—	—
Domestic, total				55	64	60	74	80	95	106	103
Exports				1	1	1	1	1	1	1	1
Drawn Tube Total		(3)	(3)	56	65	61	75	81	96	107	104
Welded Tube											
Building & construction				1	1	1	2	2	2	3	2
Transportation				—	—	—	1	1	1	3	2
Consumer durables				38	52	45	54	36	41	58	62
Electrical				2	3	3	4	4	4	5	5
Machinery & equipment				15	14	13	46	41	44	47	69
Containers & packaging				—	—	—	—	—	—	—	—
Other				1	1	1	3	2	2	2	2
**Statistical adjustment				+3	−15	−15	+4	+11	−11	−8	−28
Domestic, total				60	56	48	114	97	83	110	114
Exports				—	—	—	—	—	—		—
Welded Tube Total		(4)	(4)	60	56	48	114	97	83	110	114
Rod & Bar (2)											
Building & construction	14	13	22	27	25	23	25	29	29	33	28
Transportation	45	46	41	45	40	29	31	35	40	44	35
Consumer durables	15	14	13	15	17	11	13	15	15	16	14
Electrical	77	70	71	85	72	66	92	97	93	85	67
Machinery & equipment	53	51	52	53	54	46	52	51	53	52	41
Containers & packaging	—	—	—	—	—	—	—	1	1	—	—
Other	31	30	21	29	21	24	20	26	26	31	27
**Statistical adjustment	+44	+30	—	+55	+49	+34	+51	+109	+84	+68	—
Domestic, total	279	254	220	309	278	233	284	363	341	329	212
Exports	23	21	23	22	24	52	103	137	62	60	28
Rod & Bar Total	302	275	243	331	302	285	387	500	403	389	240

Footnotes: See page 17.

Product Net Shipments* by Major Market

Product Net Shipments* by Major Market
1977-1987

Millions of pounds

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
Bare Wire											
Building & construction	48	46	39	31	28	19	20	24	27	26	26
Transportation	13	12	12	9	4	4	4	5	8	8	8
Consumer durables	8	6	6	5	5	4	5	5	6	6	8
Electrical	9	7	7	9	8	8	9	11	11	10	11
Machinery & equipment	16	12	14	15	16	16	22	21	28	29	24
Containers & packaging	3	3	4	4	7	6	7	6	7	8	5
Other	5	5	4	2	2	3	3	4	6	4	4
**Statistical adjustment	+10	+21	+12	—	−19	−18	−23	−60	−25	−22	−12
Domestic, total	112	112	98	75	51	42	47	16	68	69	74
Exports	10	7	9	6	10	12	25	58	30	24	15
Bare Wire Total	122	119	107	81	61	54	72	74	98	93	89
ACSR & Bare Cable											
Building & construction	—	—	—	—	—	—	—	—	—	—	—
Transportation	—	—	—	—	—	—	—	—	—	—	—
Consumer durables	—	—	—	—	—	—	—	—	—	—	—
Electrical	221	238	277	341	324	299	311	367	387	335	295
Machinery & equipment	—	—	—	—	—	—	—	—	—	—	—
Containers & packaging	—	—	—	—	—	—	—	—	—	—	—
Other	—	—	—	—	—	—	—	—	—	—	—
**Statistical adjustment	—	—	—	—	—	—	—	+8	—	—	—
Domestic, total	221	238	277	341	324	299	311	375	387	335	295
Exports	2	1	5	5	35	46	68	25	31	55	57
ACSR & Bare Cable Total	223	239	282	346	359	345	379	400	418	390	352
Insulated or Covered Wire & Cable											
Building & construction	—	—	—	—	—	—	—	—	—	—	—
Transportation	—	—	—	—	—	—	—	—	—	—	—
Consumer durables	—	—	—	—	—	—	—	—	—	—	—
Electrical	408	396	395	393	332	275	320	359	428	419	376
Machinery & equipment	—	—	—	—	—	—	—	—	—	—	—
Containers & packaging	—	—	—	—	—	—	—	—	—	—	—
Other	—	—	—	—	—	—	—	—	—	—	—
**Statistical adjustment	—	—	—	—	—	—	—	—	—	—	—
Domestic, total	408	396	395	393	332	275	320	359	428	419	376
Exports	—	—	1	1	1	1	2	4	—	1	1
Insulated Wire & Cable Total	408	396	396	394r	333	276	322	363	428	420	377
Forgings											
Building & construction	—	—	—	1	1	1	1	1	1	1	1
Transportation	97	87	89	87	62	53	82	79	98	85	76
Consumer durables	1	1	1	1	1	1	2	2	2	2	2
Electrical	—	—	—	1	1	1	1	1	1	1	1
Machinery & equipment	10	9	9	9	8	8	10	10	13	13	11
Containers & packaging	—	—	—	—	—	—	—	—	—	—	—
Other	13	15	17	12	13	12	10	11	8	9	9
**Stastical adjustment	−20	−20	−15	—	—	—	—	—	—	5	—
Domestic, total	101	92	101	111	86	76	106	104	123	116	100
Exports	7	5	7	4	3	3	3	3	4	—	6
Forgings Total	108	97	108	115	89	79	109	107	127	116	106

Product Net Shipments* by Major Market 1977-1987

Millions of pounds

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
Impacts											
Building & construction	—	—	—	—	—	—	—	—	—	—	—
Transportation	7	8	7	6	5	5	6	4	5	6	4
Consumer durables	4	4	4	5	4	4	4	3	3	1	1
Electrical	2	2	2	2	2	2	3	3	4	3	2
Machinery & equipment	8	7	6	8	8	7	10	9	11	6	5
Containers & packaging	—	—	—	—	—	—	—	—	—	—	—
Other	7	6	6	8	9	7	7	7	8	5	3
**Statistical adjustment	+20	+20	+15	—	—	—	—	—	—	—	—
Domestic, total	48	47	40	29	28	25	30	26	31	21	15
Exports	—	—	—	—	—	—	—	—	—	—	—
Impacts Total	48	47	40	29	28	25	30	26	31	21	15
Powder & Paste											
Building & construction	—	—	—	—	—	—	—	—	—	—	—
Transportation	—	—	—	—	—	—	—	—	—	—	—
Consumer durables	—	—	—	—	—	—	—	—	—	—	—
Electrical	—	—	—	—	—	—	—	—	—	—	—
Machinery & equipment	—	—	—	—	—	—	—	—	—	—	—
Containers & packaging	—	—	—	—	—	—	—	—	—	—	—
Other	97	100	115	117	94	89	121	125	130	136	122
**Statistical adjustment	—	—	—	−12	−10	−10	−17	−20	−15	−14	−15
Domestic, total	97	100	115	105	84	79	104	105	115	122	107
Exports	7	6	6	8	5	6	7	16	14	14	15
Powder & Paste Total	104	106	121	113	89	85	111	121	129	136	122

* "Net Shipments" exclude intra-industry shipments for further fabrication. It is the most accurate measure of industry output to markets because it eliminates duplication. Reported receipts of aluminum for further processing are eliminated.

** "Statistical Adjustment" accounts for net shipments of aluminum reported by the Bureau of the Census which the Aluminum Association believes were either over or understated in the amounts indicated due to excessive or insufficient reporting. It also includes otherwise unpublished Census revisions. The addition of the statistical adjustments reconciles the amounts reported by the Bureau of the Census with the net-shipments that the Aluminum Association feels are more correct.

r — Revised (NR) not reported by Census.

(1) Includes primary and secondary ingot for castings, destructive uses and exports.
(2) Extruded rod & bar combined with rolled and continuous cast rod & bar from 1972 to present.
(3) Drawn tube combined with extruded pipe and tube.
(4) Welded tube combined with sheet.

SOURCE: Estimated by the Statistical and Market Research Committee of the Aluminum Association, Inc.

Trends in Selected Markets

Trends in Selected Markets*
1977-1987

BUILDING & CONSTRUCTION

Millions of Pounds

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
Windows, doors & screens, total	1,099	1,136	1,080	987	949	748	845	851	903	957	916
Ingot	34	40	37	37	33	30	34	36	46	41	43
Total mill products	1,065	1,096	1,043	950	916	718	811	815	857	916	873
Sheet	181	167	168	152	154	108	131	118	130	157	114
Plate	1	1	1	1	1	1	1	1	1	1	1
Extruded shapes	857	902	845	766	733	585	651	665	695	725	727
Rod & Bar[1]	—	—	9	15	14	11	14	15	15	16	15
Bare wire	26	25	20	16	14	13	14	15	16	17	16
Awnings & Canopies, total	132	129	132	147	152	105	114	143	156r	177	145
Ingot	—	—	—	—	—	—	—	—	—	—	—
Total mill products	132	129	132	147	152	105	114	143	156	177	145
Sheet	111	109	111	122	130	86	93	121	131	150	122
Extruded shapes	20	18	19	22	19	16	18	19	21	23	19
Extruded pipe & tube[3]	1	2	2	1	1	1	1	1	2	2	2
Drawn tube[3]	—	—	—	1	1	1	1	1	1	1	1
Welded tube[4]	—	—	—	1	1	1	1	1	1	1	1
Residential siding, total	406	376	373	325	381	262	324	376	488	494	509
Sheet	405	375	372	324	380	261	323	375	487	493	508
Extruded shapes	1	1	1	1	1	1	1	1	1	1	1
Mobile homes, total	178	185	193	183	217	161	174	156	209	268	275
Ingot	5	6	5	5	5	4	4	3	5	5	5
Total mill products	173	179	188	178	212	157	170	153	204	263	270
Sheet	104	103	114	111	140	106	115	102	144	192	196
Extruded shapes	69	76	74	67	72	51	55	51	60	71	74
Bridge, street & highway, total	133	138	131	112	112	95	93	101	128	125	123
Ingot	14	16	16	16	14	13	12	12	16	15	16
Total mill products	119	122	115	96	98	82	81	89	112	110	107
Sheet	71	72	65	52	61	47	48	52	66	68	63
Foil	1	1	1	1	1	1	1	1	1	1	—
Extruded shapes	22	23	22	20	19	15	16	18	22	20	20
Pipe & tube[3]	23	24	25	22	16	18	15	17	22	20	23
Rod & bar[1]	1	2	2	1	1	1	1	1	1	1	1

Trends in Selected Markets*
1977-1987

TRANSPORTATION

Millions of pounds

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
Trucks & buses, total	470	436r	419	466	357	273	310	287	497	449	433
Ingot	205	200r	200	212	183	151	148	136	216	199	191
Total mill products	265	236	219	254	174	122	162	151	281	250	242
Sheet	144	128	123	151	96	68	85	77	158	137	137
Plate	6	5	5	4	4	3	4	4	8	7	7
Foil	1	1	1	1	—	—	—	—	—	—	—
Rod & bar[1]	2	1	1	1	2	2	2	2	5	5	3
Extruded shapes	70	65	55	60	49	32	45	44	69	64	63
Extruded pipe & tube[3]	2	2	2	1	1	1	1	1	1	1	—
Drawn tube[3]	—	—	—	1	1	1	1	1	1	1	1
Bare wire	—	—	—	—	—	—	—	—	1	1	1
Forgings	39	33	31	34	20	14	23	21	37	33	29
Impacts	1	1	1	1	1	1	1	1	1	1	1
Passenger cars, total[2]	1,432	1,545	1,547	1,542	1,279	911	1,105	1,046	1,501	1,571	1,494
Ingot	974	1,101	1,109	1,108	917	662	781	746	1,008	1,003	967
Total mill products	458	444	438	434	362	249	324	300	493	568	527
Sheet	296	286	274	284	235	156	199	180	333	392	378
Plate	2	1	1	1	1	1	1	1	1	2	—
Foil	45	47	46	43	40	26	28	24	36	41	35
Rod & bar[1]	20	22	20	18	19	9	9	10	11	11	11
Extruded shapes	49	46	53	43	34	37	59	61	73	77	58
Extruded pipe & tube[3]	33	26	27	22	18	9	13	9	10	14	14
Drawn tube[3]	—	—	—	5	3	1	4	7	12	13	13
Bare wire	2	3	3	4	1	1	1	1	1	1	1
Forgings	9	11	12	12	10	8	8	6	14	14	14
Impacts	2	2	2	2	1	1	2	1	2	3	3
Trailers & semi-trailers, total	450	388r	386	425	301	174	211	243	388	425	366
Ingot	32	28r	30	31	20	17	20	21	33	33	30
Total mill products	418	360	356	394	281	157	191	222	355	392	336
Sheet	167	143	140	158	124	62	78	88	143	165	141
Plate	9	10	11	9	7	4	7	9	14	15	11
Rod & bar[1]	1	1	1	1	1	1	1	1	2	2	2
Extruded shapes	237	203	201	222	147	88	103	122	194	208	179
Pipe & tube[3]	3	2	2	2	1	1	1	1	1	1	1
Bare wire	1	1	1	2	1	1	1	1	1	1	2
Forgings	—	—	—	—	—	—	—	—	—	—	—

Footnotes: See page 20.

Trends in Selected Markets

Trends in Selected Markets*
1977-1987

CONSUMER DURABLES — Millions of pounds

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
Air conditioners, freezers, refrigerators, total	412	375	315	337	275	219	290	249	304	357	301
Ingot	35	36	33	32	30	25	33	29	38	39	35
Total mill products	377	339	282	305	245	194	257	220	266	318	266
Sheet	150	134	118	125	108	95	117	106	116	138	127
Foil	145	129	113	132	104	75	109	81	108	117	91
Rod & Bar	1	1	1	—	—	—	—	—	—	—	—
Extruded shapes	32	31	17	15	13	12	13	13	19	31	22
Extruded pipe & tube(3)	49	44	33	30	16	11	14	12	13	13	13
Drawn tube(3)	—	—	—	2	2	1	4	8	10	14	13
Portable appliances, total	52	49	47	53	55	44	59	56	70	76	58
Ingot	28	30	28	31	30	26	31	30	41	43	37
Total mill products	24	19	19	22	25	18	28	26	29	33	21
Sheet	21	17	16	18	21	14	23	22	24	27	16
Extruded shapes	2	1	2	2	2	3	3	2	2	2	2
Pipe & Tube(3)	1	1	1	1	1	1	1	1	2	3	3
Rod & bar(1)	—	—	—	1	1	—	1	1	1	1	—
Cooking utensils, total	159	151	150	175	206	136	171	161	152	171	138
Ingot	24	26	25	26	23	21	26	24	27	28	25
Total mill products	135	125	125	149	183	115	145	137	125	143	113
Sheet	132	122	121	144	177	109	140	132	121	139	109
Extruded shapes	2	2	3	4	4	4	4	4	3	3	3
Bare wire	1	1	1	1	1	1	1	1	1	1	1
CONTAINERS & PACKAGING											
Household & institutional foil, total	285	270	267	270	283	270	287	283	290	257	259
Metal cans total mill products	3,732	3,502	3,381	3,251	3,140	2,858	2,725	2,583	2,445	2,349	2,051
Sheet	3,732	3,502	3,381	3,251	3,140	2,858	2,725	2,583	2,445	2,349	2,051
Semi-rigid food containers Total mill products	163	167	157r	173	158	134	153	160	159	176	168
Sheet	30	27	25	33	21	19	38	20	22	23	15
Foil	133	140	132r	140	137	115	115	140	137	153	153

r — revised

** — These "selected markets" represent either those in which The Aluminum Association has marketing programs, or which are important aluminum market categories. They only account for a portion of aluminum shipments to each major market.*

(1) Extruded rod and bar combined with rolled and continuous cast and rod bar.

(2) Shipments to "Passenger Cars" cover new domestic automobile production, spare parts, accessories and after-market parts. Shipments for light trucks and vans are included in Trucks and Buses.

(3) Drawn tube combined with extruded pipe & tube.

(4) Welded tube combined with sheet.

NOTE: For information on years prior to 1977, see the Aluminum Statistical Review—Historical Supplement.

SOURCE: Estimated by the Statistics Task Group Committee of the Aluminum Association, Inc.

U.S. Aluminum Supply

The U.S. aluminum supply increased 240,000 metric tons in 1987 to a total of 6,895,268 metric tons. This represents a 3.6 percent rise compared to the 1986 supply level. Primary production at 3,346,852 metric tons was up 10.1 percent from the 1986 production of 3,038,653 metric tons.

Primary imports of 1,245,524 metric tons were 7.7 percent less than the 1986 level of 1,348,831 metric tons. Imports of mill products decreased 7.7 percent to 455,892 metric tons during 1987 as compared to 493,913 metric tons in 1986.

Import data for both years reflect the reimports of metal exported for processing and returned to further processing in accordance with tariff arrangements under TSUSA 806.30 (Tariff Schedules of the United States Annotated).

Secondary recovery (domestic and imports) was 1,847,000 metric tons.

The graph on page 22 illustrates the relative change in the portions of total aluminum supplies from each source for the years 1977 through 1987.

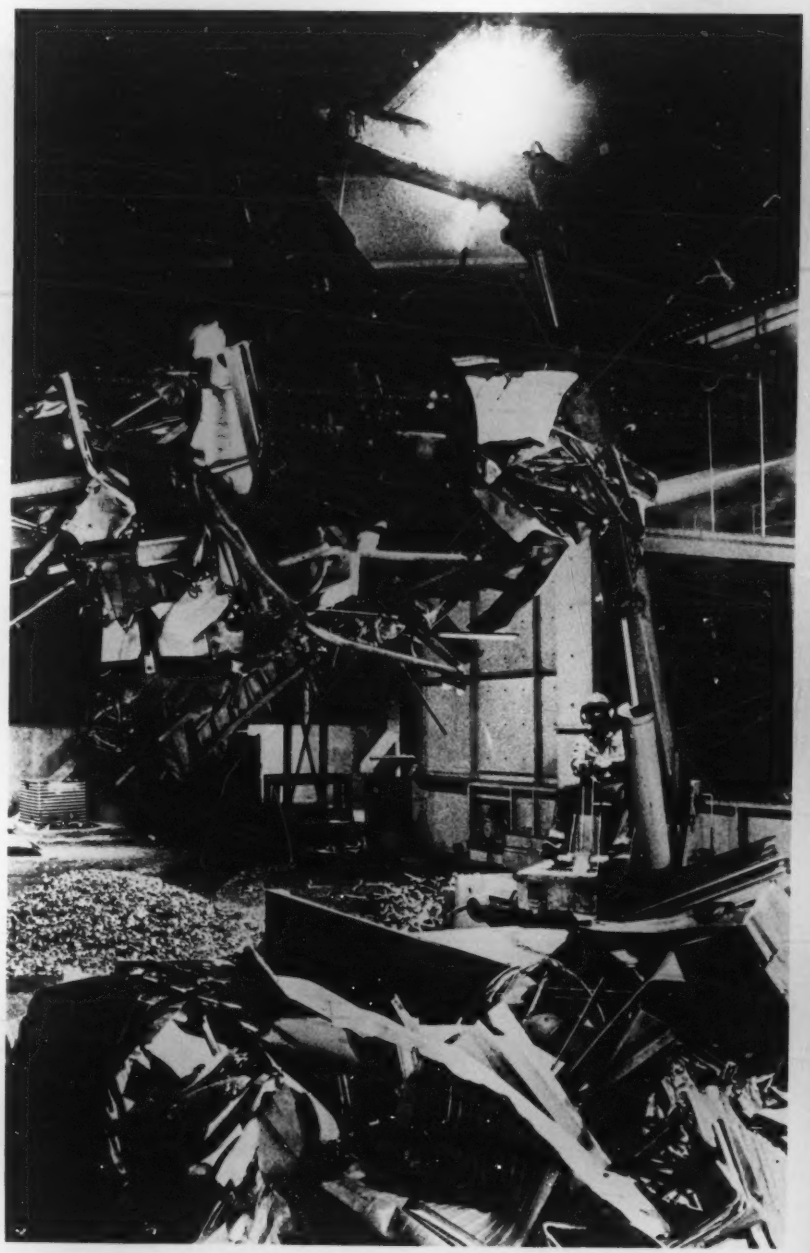
The table on page 23 details the total supply of aluminum and its principal sources for the years 1942 through 1987 before any adjustments for stockpile deliveries or withdrawals. The significance of the stockpile and its effect on total supply are described on page 24.

The growth of U.S. primary aluminum production over the past decade is outlined on the graph and detailed in the table on page 25.

Miscellaneous household and commercial aluminum scrap account for a large amount of recoverable aluminum in solid waste stream of automobiles, appliances and municipal refuse. In 1987, secondary recovery, including new and used aluminum scrap, accounted for 26.8 percent of the total aluminum supply.

Installed capacity by company is presented for the years 1977 through 1987 on page 26. The 1987 year-end primary aluminum capacity in the U.S. was 3,872,100 metric tons, up 0.7 percent from 1986.

Aluminum recovery from scrap is an important contributor to the total aluminum supply. Data showing the increase in this source of supply for the years 1946 through 1987 are presented on pages 30 and 31.



Total Supply

1987 SUPPLY UP 3.6 PERCENT

Total supply increased 3.6 percent to 6,895,000 metric tons in 1987.

Changes vs. 1986

Primary production	+10.1%
Imports, Primary	−7.7%
Imports, Mill Products	−7.7%
Secondary Recovery	+4.2%

Since 1977 the total supply has expanded at an average rate of 0.2 percent a year. In 1987 primary production represented 49 percent of total supply; imports accounted for 25 percent; and secondary recovery represented 27 percent.

In the ten years 1977-1987, secondary recovery grew at a 2.0 percent annual rate, while primary reduction decreased at a 3.4 percent annual rate.

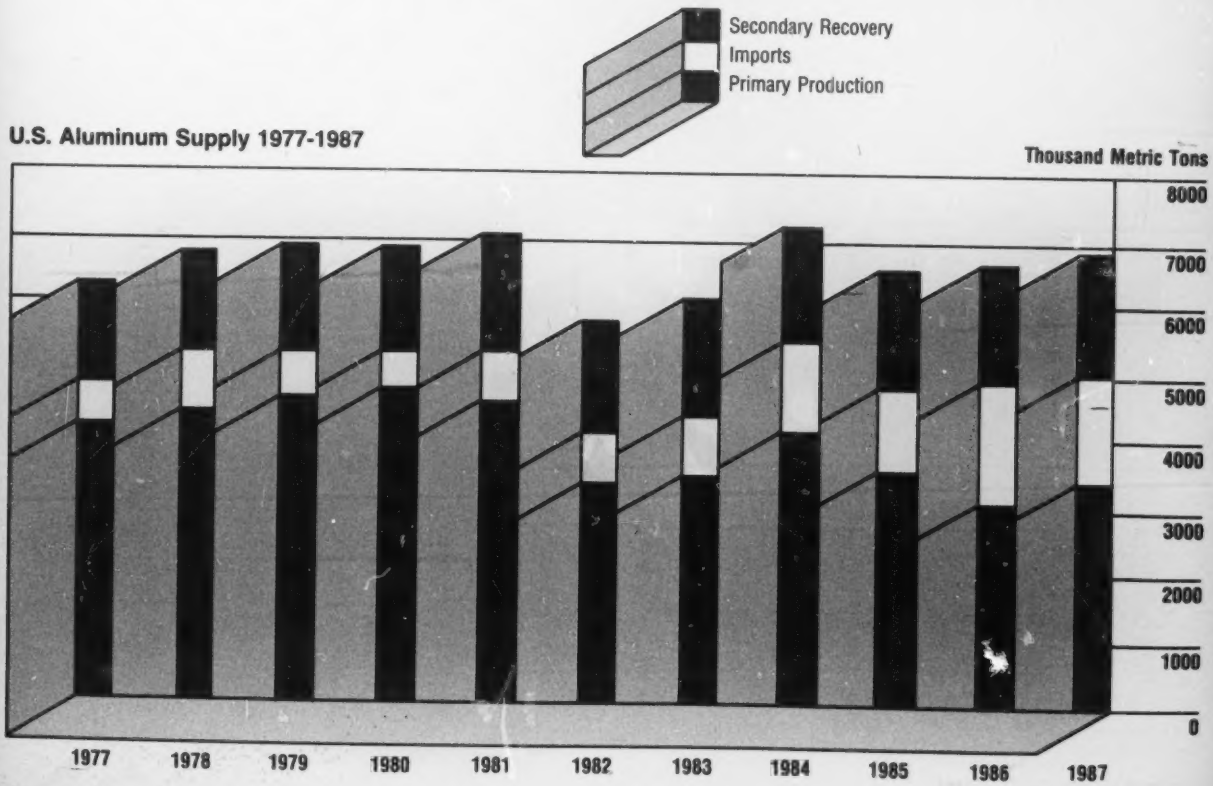
DESCRIPTION

United States supply of aluminum consists of domestic primary production, imports of primary and mill products, and metal recovered from scrap. No adjustment is made in this presentation for shipments to or withdrawals from the government stockpile. This is shown on page 24.

Detailed data on United States supply of aluminum from 1942 to 1987 are shown in the table on page 23.

For a picture of domestic primary production, see page 25. For the relationship of domestic primary production to world production, see pages 44-45. For a breakdown of imports, see pages 38-39. For further information on secondary recovery, see pages 30 and 31.

U.S. Aluminum Supply 1977-1987



Total Supply
1942-1987

Thousands of Metric Tons

Year	Total Supply	Domestic Primary Production	Imports			Secondary Recovery		Imported Scrap[1][2]
			Total	Primary[1]	Mill Products[3]	Total	Domestic[2]	
1942	753	473	102	97	5	178	178	(*)
1943	1,242	835	123	123	(*)	285	285	(*)
1944	1,093	704	92	91	(*)	297	295	1
1945	1,029	449	305	302	3	275	271	4
1946	674	371	39	38	1	264	252	12
1947	859	519	14	14	(*)	326	313	13
1948	965	566	81	75	5	319	260	59
1949	822	547	78	70	7	197	164	33
1950	1,099	652	171	161	10	276	221	55
1951	1,171	759	130	111	19	282	265	16
1952	1,264	850	131	116	15	282	276	6
1953	1,795	1,136	303	273	30	356	334	22
1954	1,830	1,325	214	201	13	291	284	7
1955	2,014	1,420	200	179	21	393	376	18
1956	2,153	1,523	232	210	22	398	388	10
1957	2,133	1,495	224	205	20	415	404	11
1958	2,009	1,420	259	232	28	329	321	8
1959	2,457	1,773	268	218	50	416	407	9
1960	2,406	1,828	178	140	38	401	397	4
1961	2,402	1,727	230	181	49	445	440	5
1962	2,796	1,921	341	282	59	533	528	5
1963	3,118	2,098	419	377	42	601	593	8
1964	3,372	2,316	409	357	51	648	641	7
1965	3,817	2,499	543	479	65	774	752	22
1966	4,116	2,693	591	475	116	833	805	28
1967	4,254	2,966	466	408	59	821	797	25
1968	4,572	2,953	684	622	62	935	904	31
1969	4,991	3,441	484	425	59	1,067	1,043	24
1970	4,950	3,607	406	318	88	937	907	30
1971	5,146	3,561	582	503	78	1,004	953	51
1972	5,445	3,740	684	598	86	1,022	1,022	(2)
1973	5,759	4,109	523	461	63	1,127	1,127	(2)
1974	6,123	4,448	511	461	50	1,163	1,163	(2)
1975	5,093	3,519	453	394	59	1,121	1,121	(2)
1976	5,799	3,857	608	522	86	1,334	1,334	(2)
1977	6,256	4,117	683	608	75	1,456	1,456	(2)
1978	6,783	4,358	907	688	220	1,518	1,518	(2)
1979	6,880	4,557	711	518	193	1,612	1,612	(2)
1980	6,833	4,653	603	527	76	1,577	1,577	(2)
1981	7,061	4,489	782	645	138	1,790	1,790	(2)
1982	5,762	3,274	823	616	207	1,666	1,666	(2)
1983	6,149	3,353	1,023	743	281	1,773	1,773	(2)
1984	7,235	4,099	1,376	882	494	1,760	1,760	(2)
1985	6,594	3,500	1,332	869	463	1,762	1,762	(2)
1986	6,655r	3,039	1,843	1,349	494r	1,773r	1,773r	(2)
1987	6,895	3,347	1,701	1,246	456	1,847p	1,847p	(2)

r — Revised *Detail may not add due to rounding*

p — Preliminary

(a) Less than 0.5 thousands of metric tons

CONVERSION FACTOR: One metric ton = 2,204.6 pounds

(1) Some imports of "starter" metal, classified by the Bureau of The Census in 1954-1957 as scarp, have here been classified as primary metal, as estimated by the Department of Commerce.

(2) Domestic secondary data are recoverable metal content for estimated total scrap consumption, as estimated by the Bureau of Mines. Before 1972 total supply included both domestic secondary recovery and an estimated 90 percent recovery from reported scrap imports. Beginning in 1972 the Bureau of Mines required reporting of imported scrap recovery data and these data are included in the domestic secondary figures beginning with that year.

(3) Starting in 1970, includes reimports of metal exported for processing and returned for further processing. (TSUSA 806.30)

SOURCE: U.S. Department of Commerce, Bureau of the Census, Department of Interior, and Bureau of Mines.

U.S. Suppliers' Inventories

INVENTORIES DOWN 15.3 PERCENT

The Bureau of the Census began reporting U.S. Suppliers' aluminum inventory in 1968. The figures include all forms of scrap, ingot, metal in process and finished products. During 1987 inventories decreased by 753 million pounds to year-end inventory of 4,175 million pounds.

U.S. Suppliers' Inventories 1977-1987

Millions of pounds at end of year

	Type of Supplier			
Year*	Total	Integrated	Non Integrated	Secondary Smelter
1977	5,706	4,778	687	241
1978	5,494	4,460	776	258
1979	5,125	4,124	768	233
1980	5,076	4,018	797	261
1981	6,607	5,524	798	266
1982	6,199	5,224	759	216
1983	4,994	3,979	853	163
1984	5,850	4,692	929	229
	Total	Ingot	Scrap	Other
1985	5,165	2,235	567	2,364
1986	4,928	1,973	630	2,324
1987	4,175	1,466	587	2,123

Detail may not add due to rounding.

**Prior to 1977 consult the Aluminum Statistical Review—Historical Supplement.*

SOURCE: U.S. Department of Commerce. Bureau of the Census Current Industrial Report M33-2.

Total Supply Adjusted for Stockpile

The United States Government's aluminum stockpile, following World War II, was formed to provide the nation with a supply of aluminum for mobilization purposes. Since 1963, as a result of an agreement between major domestic aluminum producers, other interested aluminum enterprises and the U.S. Government, a program of orderly disposal of the stockpile ensued. By the end of 1976, the stockpile was essentially depleted. The data in the table represent the best figures available from different sources. Total supply, unadjusted for stockpile changes is on page 23.

Total Supply Adjusted for Stockpile 1977-1987

Millions of pounds

Year*	Total supply adjusted for stockpile	Total supply, all sources	Shipments from stockpile	Shipments to stockpile
1977	13,792	13,792	—	—
1978	14,954	14,954	—	—
1979	15,168	15,168	—	—
1980	15,064	15,064	—	—
1981	15,567	15,567	—	—
1982	12,703	12,703	—	—
1983	13,558	13,558	—	—
1984	15,951	15,951	—	—
1985	14,537	14,537	—	—
1986	14,672r	14,672r	—	—
1987	15,201	15,201	—	—

**Prior to 1977 consult the Aluminum Statistical Review—Historical Supplement.*

SOURCES: General Services Administration; U.S. Department of Commerce; Industry Sources

Production of Primary Aluminum

PRODUCTION UP 10.1 PERCENT

Primary aluminum production totaled 3,346,852 metric tons in 1987 vs. the production of 3,038,653 metric tons in 1986. In the decade 1977-1987 the average annual rate of change was −3.4 percent.

DESCRIPTION:

In the United States, primary production of aluminum was begun in 1888 by the Pittsburgh Reduction Company. Data on aluminum production started in 1893, covering the industry from its very early period.

Data for 1977-1987 are presented here for your review. Data prior to 1977 may be obtained from the Aluminum Statistical Review—Historical Supplement.

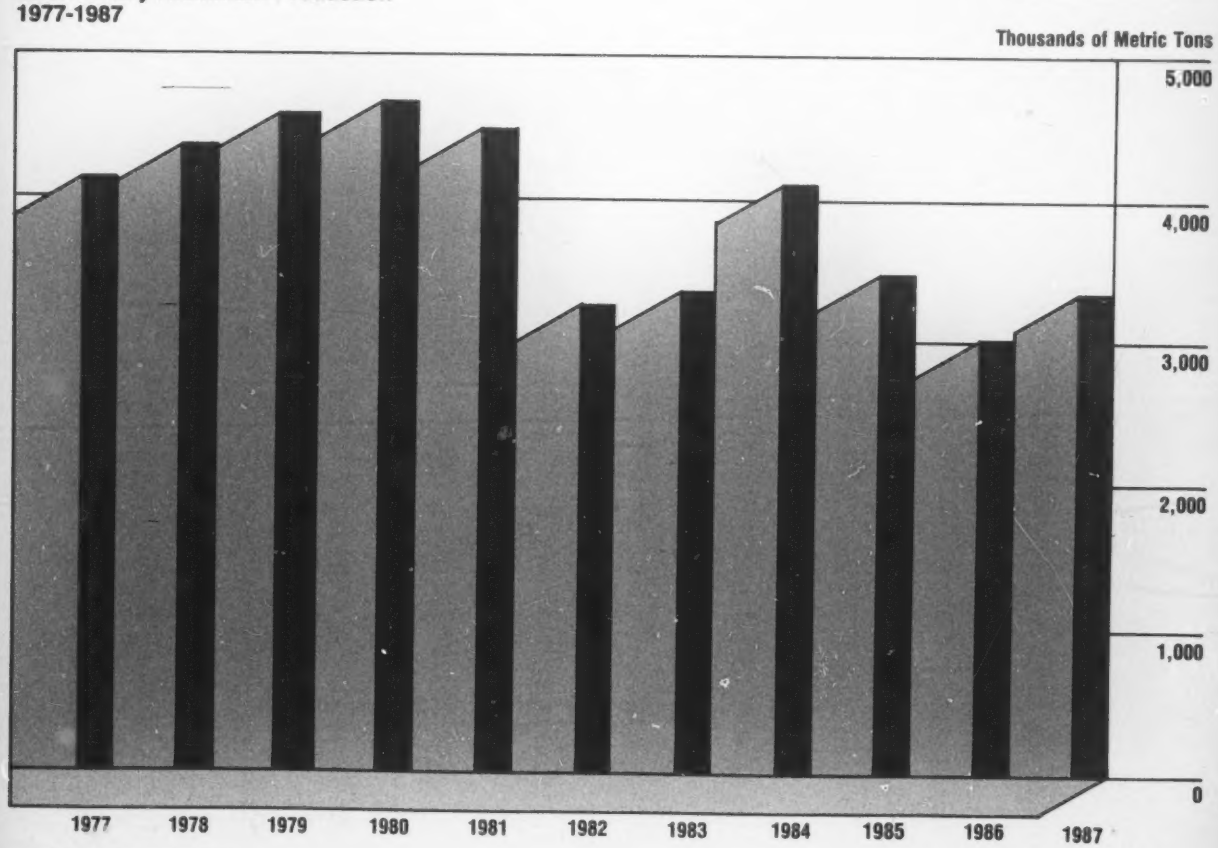
Production of Primary Aluminum in U.S.A. 1977-1987

Year*	Thousands of Metric Tons
1977	4,117.5
1978	4,358.0
1979	4,556.9
1980	4,653.6
1981	4,488.7
1982	3,273.7
1983	3,353.3
1984	4,099.1
1985	3,499.7
1986	3,038.7
1987	3,346.9

** Prior to 1977 consult the Aluminum Statistical Review—Historical Supplement.*

SOURCES: The Aluminum Association, Inc.
CONVERSION FACTOR:
One metric ton = 2,204.6 pounds.

U.S. Primary Aluminum Production 1977-1987



SOURCE: the Aluminum Association

U.S. Primary Aluminum Capacity

CAPACITY UP 0.7 PERCENT
Total annual primary aluminum installed capacity as of December 31, 1987 was 3,872,100 metric tons.

The percentage distribution of U.S. primary capacity by company at year-end 1987 was: Alcoa, 29.8%; Alumax, 15.5%; Reynolds, 10.9%; Kaiser, 9.9%; Ormet, 6.3%; Noranda, 5.3%; Alcan, 4.2%; Columbia Falls, 4.2%; Vanalco, 3.0%; National Aluminum, 2.5%; Northwest Aluminum, 2.1%; Southwire, 2.1%.

DESCRIPTION:

There were thirteen domestic primary producer companies as of December 31, 1987. They were Alcan Aluminum Corp., Aluminum Company of America, Alumax, Inc., Columbia Falls Aluminum, Columbia Aluminum Corp., Kaiser Aluminum & Chemical Corporation, National Aluminum Company (54.5% interest in National-Southwire), Noranda Aluminum Incorporated, Northwest Aluminum, Ormet Corp., Reynolds Metals Company, Southwire Company (45.5% interest in National-Southwire) and Vanalco, Inc.

U.S. Primary Aluminum Capacity[1]
1977-1987

Thousands of Metric Tons

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
Alcoa	1,155.0	1,095.0	1,430.0	1,429.7	1,429.7	1,429.7	1,564.9	1,564.9	1,542.2	1,542.2	1,519.6
Alumax[3]	600.0	600.0	599.0	595.1	595.1	385.6	377.1	377.1	198.4	198.4	198.4
Reynolds	422.8	422.8	422.8	781.1	884.5	884.5	884.5	884.5	884.5	884.5	884.5
Kaiser	383.8	526.2	526.2	526.2	656.8	656.8	656.8	656.8	656.8	656.8	656.8
ARCO Aluminum[2][5]	-	-	-	326.6	326.6	326.6	326.6	326.6	326.6	272.2	272.2
Ormet Corp.[6]	244.9	244.9	-	-	-	-	-	-	-	-	-
Consolidated	-	-	227.2	292.3	294.1	326.8	319.3	319.3	319.3	319.3	319.3
Howmet[3]	-	-	-	-	-	207.0	198.4	198.4	198.4	198.4	198.4
Noranda	204.1	204.1	204.1	204.1	204.1	204.1	127.0	127.0	127.0	127.0	127.0
Revere	-	-	184.7	184.9	184.9	184.9	184.3	184.3	184.3	184.3	181.4
Commonwealth[4]	-	167.8	167.8	-	-	-	-	-	-	-	-
Alcan[5]	163.3	163.3	163.3	-	-	-	-	-	-	-	-
Columbia Aluminum	163.3	-	-	-	-	-	-	-	-	-	-
Columbia Falls[5]	163.3	163.3	163.3	-	-	-	-	-	-	-	-
Vanalco, Inc.	115.0	-	-	-	-	-	-	-	-	-	-
National Aluminum	95.4	95.4	95.4	93.9	86.2	81.6	81.6	81.6	81.6	81.6	81.6
Northwest Aluminum[7]	81.6	81.6	-	-	-	-	-	-	-	-	-
Martin Marietta[4]	-	-	81.6	249.5	249.5	249.5	190.5	190.5	190.5	190.5	190.5
Southwire	79.6	79.6	79.6	78.5	86.2	81.6	81.6	81.6	81.6	81.6	81.6
Total	3,872.1	3,844.0r	4,345.1	4,761.9	4,997.7	5,018.8	4,992.8	4,992.8	4,791.4	4,737.0	4,711.4

(1) Capacities shown are as reported for December 31. They include nominal ownership of plants owned by more than one company.
(2) Formally the Anaconda Company (Aluminum Division)
(3) Alumax acquired Howmet in 1983
(4) Commonwealth acquired 67% of Martin Marietta in 1985
(5) Alcan Aluminum and Columbia Falls Aluminum acquired 50% each of ARCO Aluminum in 1985
(6) Formally included with Consolidated and Revere
(7) Formally Martin Marietta Goldendale plant

Note: Prior to 1977 consult the Aluminum Statistical Review Historical Supplement.

SOURCE: The Aluminum Association
CONVERSION FACTOR: One metric ton = 2,204.6 pounds.

Number of Plants in the U.S.

Number of Plants in the U.S.

SELECTED YEARS

PRODUCT	1985	1982	1977
Primary Ingot	30	32	32
Secondary Ingot	69	76	89
Sheet and Plate	44	68	49
Foil	26	27	27
Rod & Bar, Rolled and Continuous Cast	18	22	31
Wire, Bare, Conductor & Nonconductor	61	69	125
ACSR and Aluminum Cable, Bare	16	16	59
Wire & Cable, Insulated or Covered	43	43	90
Extruded Products	217	226	222
Drawn Tube	19	19	22
Welded Tube	16	18	32
Powder	19	17	18
Forgings	48	44	74
Impacts	13	16	29

na — Not available

SOURCE: 1977 U.S. Department of Commerce. 1982 and 1985: The Aluminum Association

The data presented here are based on a survey conducted by the Aluminum Association in 1985. Previous years are based on unofficial directories prepared by the U.S. Department of Commerce, Bureau of Industrial Economics.

The figures shown for each product for selected years represent number of plants—not companies, which in many instances operate more than one plant. No totals are shown since some plants produce more than one product. Data include captive plants (plants producing only for company's own use).

Five outline maps of the United States indicating the geographic distribution of aluminum plants by various product groups in 1985 are presented on pages 27-29.

For a detailed listing, contact the Aluminum Association for a copy of the U.S. Aluminum Industry Plant Directory (August, 1985).

★ *Primary*
■ *Secondary*

U.S. Plants — cont.

● *Foil*
★ *Sheet and Plate*

● *Bare Wire*
★ *Rolled and Continuous Cast Rod and Bar*
■ *ACSR and Cable and/or Insulated or Covered Wire and Cable*

★ *Extrusions*

■ *Forgings and/or Impacts*
● *Powder and Paste*
★ *Drawn and/or Welded Tube*

Aluminum Scrap Consumption and Recovery

SCRAP CONSUMPTION UP 2.9 PERCENT

Total domestic industry scrap consumption on a gross weight basis, increased 2.9 percent to a 1987 level of 2,043,000 metric tons from the 1986 volume of 1,986,000 metric tons.

Secondary recovery totaled 1,847,000 metric tons with new scrap accounting for 55 percent and old scrap for 45 percent.

Old scrap recovery at 834,000 metric tons was up 6.4 percent from 1986. Reclamation from aluminum cans increased to an estimated 1,335,000 metric tons, up 8.3 percent from 1986 accounting for 50.5% of can shipments.

DESCRIPTION:

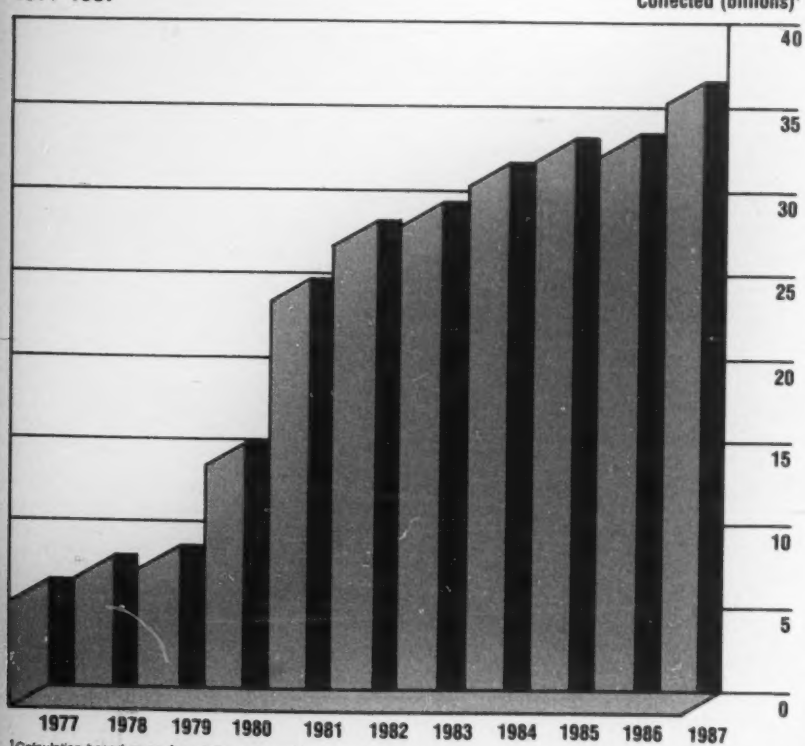
Recovery of aluminum from scrap, an important source of supply, is shown on pages 30 and 31. Two sets of scrap data are tabulated. The scrap consumption figures are on a gross weight basis as reported by plants consuming scrap. The aluminum recovery figures are on a recovered metal basis, that is the content of aluminum base alloy recovered from gross weight consumed. The figures in this table are consistent with domestic secondary recovery on page 23.

The aluminum recovery data are shown by source, that is by new and old scrap. New scrap, generated by plants making end products, and old scrap recovered from metal that has been used by consumers, are returned to plants making ingot and mill products and thus add to the total metal supply.

Through 1954, data on scrap consumption and recovery are based on complete reporting. Beginning in 1955, reported figures are expanded to industry totals by the Bureau of Mines to allow for a number of firms who do not report. In 1961, sweated pig consumption data were improved and included in old scrap.

Recovery of new scrap and old scrap over the past ten years has been about 25 percent of total supply (26.8 percent in 1987). However, this figures does not include "run-around" scrap consumed by the generating companies.

Aluminum Can Reclamation Data 1977-1987



[1]Calculation based on an Association can weight survey.
*preliminary

Aluminum Can Reclamation Data 1977-1987

Year	Pounds of Aluminum Collected (millions)	No. of Aluminum Cans Collected (billions)[3]	Percent of Aluminum Cans Collected[4]
1977	280[(2)]	6.6	26.4
1978	340[(2)]	8.0	27.4
1979	360[(2)]	8.5	25.7
1980	609[(2)]	14.8	37.3
1981	1,017[(2)]	24.9	53.2
1982	1,124[(2)]	28.3	55.5
1983	1,144[(2)]	29.4	52.9
1984	1,226[(2)]	31.9	52.8
1985	1,245[(5)]	33.1	51.0
1986	1,233[(5)]	33.3	48.7
1987	1,335[(5)(6)]	36.6	50.5

(1) Represents total industry; includes an additional 18 million pounds in the year 1974 which accounts for all-aluminum cans collected by non-members of the Aluminum Association.

(2) SOURCE: Net receipts—U.S. Department of the Interior, Bureau of Mines.

(3) Calculation based on an Association can weight survey.

(4) Based on Can Manufacturers Institute aluminum beverage can shipments data logged one quarter.

(5) Estimated by the Statistical and Market Research Committee of the Aluminum Association

(6) Beginning in 1987, data includes estimate of exported can scrap.

p-Preliminary

Aluminum Scrap Consumption and Recovery 1946-1987

Metric Tons

SCRAP CONSUMPTION	SCRAP CONSUMPTION (Gross Weight Basis) As Reported[3]				RECOVERY[5] (Recoverd Metal Basis)		
Year	Total Industry[1]	Total	Secondary Smelters	Primary Producers[2][3]	Others[4]	Total Industry[1]	From New Scrap	From Old Scrap
1946	312,000	312,063	215,900	90,719	5,443	252,266	170,133	82,133
1947	372,920	372,920	283,123	81,656	8,141	312,834	164,193	148,641
1948	294,380	294,380	197,465	91,131	5,783	260,162	173,391	86,771
1949	180,567	180,567	116,549	59,514	4,504	163,986	123,529	40,457
1950	247,838	247,838	174,224	61,976	11,638	221,052	151,781	69,272
1951	301,457	301,457	210,777	72,996	17,685	265,452	195,969	69,483
1952	315,459	315,459	231,410	70,706	13,343	276,261	211,610	64,650
1953	374,973	374,973	250,639	105,244	19,090	334,361	262,747	71,614
1954	317,985	317,985	216,882	82,959	18,144	283,994	223,722	60,272
1955	444,500	387,413	284,749	78,689	23,974	375,600	285,300	90,300
1956	469,000	398,569	301,017	80,517	17,035	388,300	300,300	88,000
1957	482,600	420,031	312,982	85,276	21,773	403,800	315,300	88,500
1958	390,100	340,709	250,170	70,110	20,430	321,100	249,000	72,100
1959	489,000	431,792	348,822	57,078	25,892	407,300	313,000	94,300
1960	474,500	400,507	321,046	49,321	30,141	397,300	311,100	86,200
1961	525,300	451,888	300,921	40,435	110,532	440,000	298,900	141,100
1962	635,000	539,665	401,132	33,131	105,402	527,900	376,900	151,000
1963	707,600	587,398	447,399	40,719	99,280	593,300	449,100	144,200
1964	771,100	646,150	488,970	53,459	103,720	641,400	494,400	147,000
1965	880,000	740,833	526,031	86,170	128,632	752,100	566,100	186,000
1966	979,800	813,149	579,477	113,841	119,831	805,200	635,300	169,900
1967	961,600	800,866	559,870	111,573	129,423	796,500	638,200	158,300
1968	1,105,000	920,865	634,391	138,053	148,421	904,500	740,300	164,200
1969	1,207,500	1,006,166	673,245	178,587	154,334	1,043,200	861,800	181,400
1970	1,058,700	882,276	589,973	139,025	153,279	907,200	728,500	178,700
1971	1,097,700	911,529	580 522	154 908	176,099	952,600	756,600	196,000
1972	1,217,500	1,045,480	640,918	186,184	218,378	1,021,500	794,700	226,800
1973	1,343,600	1,145,277	668,438	192,820	284,020	1,126,700	886,300	240,400
1974	1,313,600	1,094,131	571,735	216,781	305,616	1,163,000	887,200	275,800
1975	1,319,100	1,117,804	554,785	310,995	252,023	1,121,300	815,600	305,700
1976	1,579,400	1,329,458	688,553	331,298	309,607	1,334,400	963,400	371,000
1977	1,681,900	1,422,675	763,184	386,222	273,269	1,456,000	974,300	481,700
1978	1,733,600	1,466,492	800,777	396,770	268,944	1,517,700	996,100	521,600
1979	1,832,500	1,546,794	836,577	401,217	308,999	1,612,100	1,055,100	557,000
1980	1,798,100	1,536,454	802,191	491,491	242,771	1,576,700	959,800	616,900
1981	2,031,200	2,031,200	1,036,000	663,200	332,000	1,789,900	1,031,500	758,400
1982	1,900,600	1,900,600	880,000	673,100	347,500	1,665,600	883,600	782,000
1983	2,018,900	2,018,900	897,000	774,000	347,900	1,773,000	953,000	820,000
1984	2,010,000	2,010,000	872,000	782,000	356,000	1,760,000	935,000	825,000
1985	1,978,000	1,978,000	923,000	727,000	328,000	1,762,000	912,000	850,000
1986	1,986,000r	1,986,000r	883,000r	781,000r	322,000r	1,773,000r	989,000r	784,000r
1987p	2,043,000	2,043,000	834,000	856,000	353,000	1,847,000	1,013,000	834,000

r — revised

p — preliminary

(1) As reported, 1946-54: estimates expanded from reported figures, 1955 to present.

(2) For 1951-53 includes small amounts reported consumed by non-integrated fabricators

(3) Represents 100 per cent scrap consumption coverage by primary producers

(4) Most consumption of sweated pig apparently not reported by "others" prior to 1961

(5) Recovery from sweated pig included in new scrap 1946-60, old scrap 1961 to present.

(6) Figures 1981 to present represent estimated full coverage.

SOURCE: U.S. Department of the Interior, Bureau of Mines and U.S. Depatment of Commerce, Bureau of Industrial Economics.

Conversion Factor: One metric ton = 2,204.6 pounds.

U.S. Aluminum Foreign Trade Statistics

IMPORTS ACCOUNT FOR 24.7 PERCENT OF U.S. SUPPLY
For the year 1987 imports of aluminum ingot and mill products accounted for 24.7 percent of total aluminum supply in the United States. Exports comprised 7.6 percent of total industry shipments. These facts illustrate the major role of foreign trade in the U.S. aluminum industry.

1987 imports of aluminum ingot dropped 7.7 percent to 2,746 million pounds as compared with 2,974 million pounds in 1986. Imports of semifabricated products also decreased, falling to 1,005 million pounds, down 7.7 percent from 1986.

Exports of aluminum ingot rose in 1987 to 620 million pounds, a 34.1 percent increase from a 1986 level of 462 million pounds. Exports of semifabricated products increased to 636 million pounds, 41.7 percent rise from 1986.

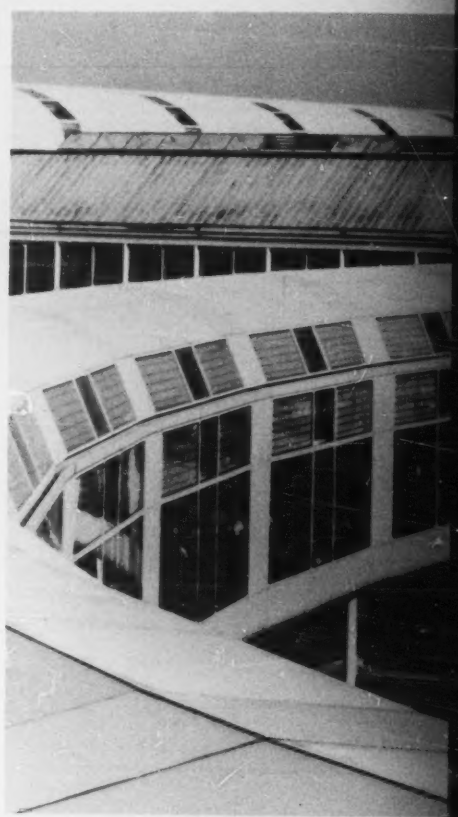
Exports of aluminum scrap showed a 6.2 percent increase to a 812 million pound level.

In 1987 the U.S. was again a net importer of aluminum by an amount of 2,104 million pounds.

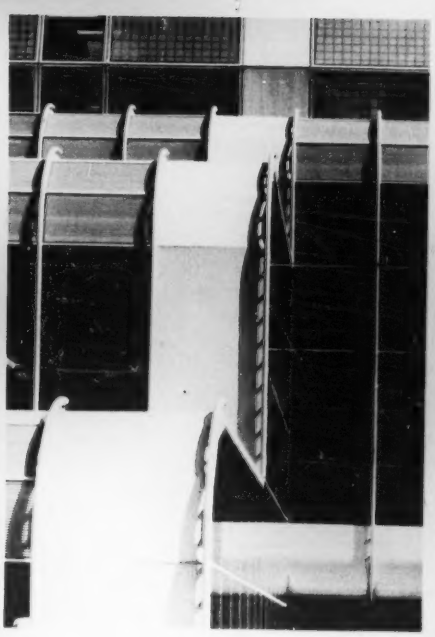
The product composition of United States imports and exports for the years 1977-1987 is graphically presented on pages 34 and 35. The data for total imports and exports as well as the detail of semifabricated aluminum product imports and exports for 1987 and the preceding 10 years are tabulated on pages 36 and 37. The total imports include dross and skimmings and the gross weight of scrap. In the table on United States Supply (page 23) dross and skimmings are excluded, and the recovered weight of imported scrap is used. It is counted as part of domestic secondary recovery for the years 1972-1986 and shown as a separate supply component for years prior to 1972.

The detail of 1987 aluminum imports by product and country of origin is presented on pages 38 and 39. Similarly, the exports on a product basis by country of destination are detailed on pages 40 and 41.

For information on years prior to 1977 see the Aluminum Statistical Review—Historical Supplement.



The United Airlines Terminal 1 Complex at Chicago-O'Hare International Airport has an exterior skin of aluminum sandwich panels combined with insulated, fritted glass panels in aluminum frames.



U.S. Imports

IMPORTS FALL 5.8 PERCENT
Aluminum imports totaled 4,172 million pounds during 1987, down 5.8 percent from 1986. Ingot, which accounted for 65.8 percent of all aluminum imported during 1987, decreased 7.7 percent to 2,746 million pounds. Canada topped the list of ingot importers with imports of 2,026 million pounds, 73.8 percent of total ingot imports.

Semifabricated aluminum products also decreased 7.7 percent to 1,005 million pounds. Japan led the list of over 70 countries exporting semifabricated products to the U.S. with a total of 230 million pounds or 22.9 percent of total semifabricated products imports. Aluminum sheet imports, at 692 million pounds, were down 8.6 percent. Japan and Canada continue to be the largest source at 30.6 percent and 26.7 percent of the total respectively.

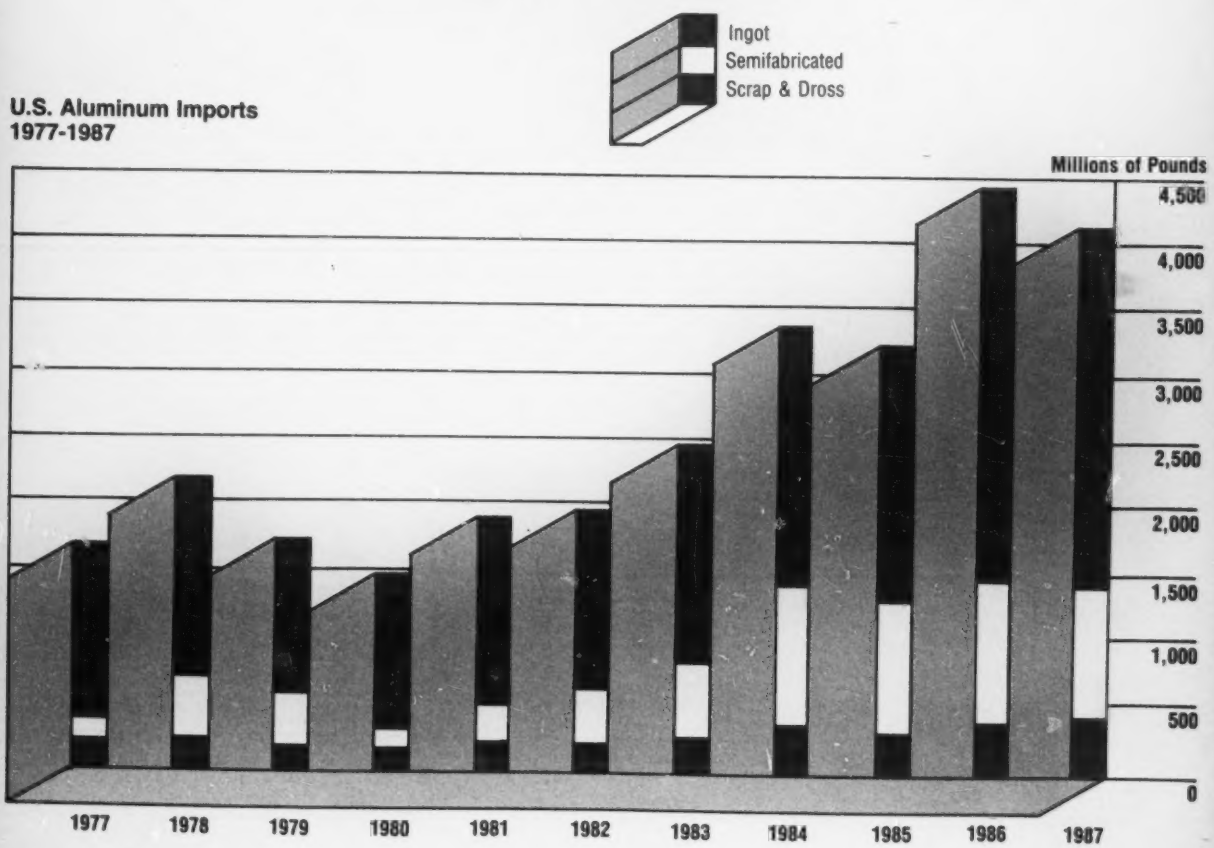
1987 scrap imports increased 15.6 percent to 421 million pounds from a 1986 level of 364 million pounds.

Imported semifabricated products dropped to a 5.5 percent penetration of the U.S. market, down from 6.2 percent in 1986.

DESCRIPTION:

The graph below illustrates the trend of U.S. aluminum imports in the years 1977-1987. In addition to showing the imports of ingot, scrap, and dross and skimmings, the upper half of the table on pages 36 and 37 shows in detail the categories of imports of semifabricated products for the years 1977-1987. Imports of aluminum by country for the year 1987 are shown on pages 38 and 39.

U.S. Aluminum Imports 1977-1987



Source: the Aluminum Association

U.S. Exports

U.S. EXPORTS JUMP 23.4 PERCENT

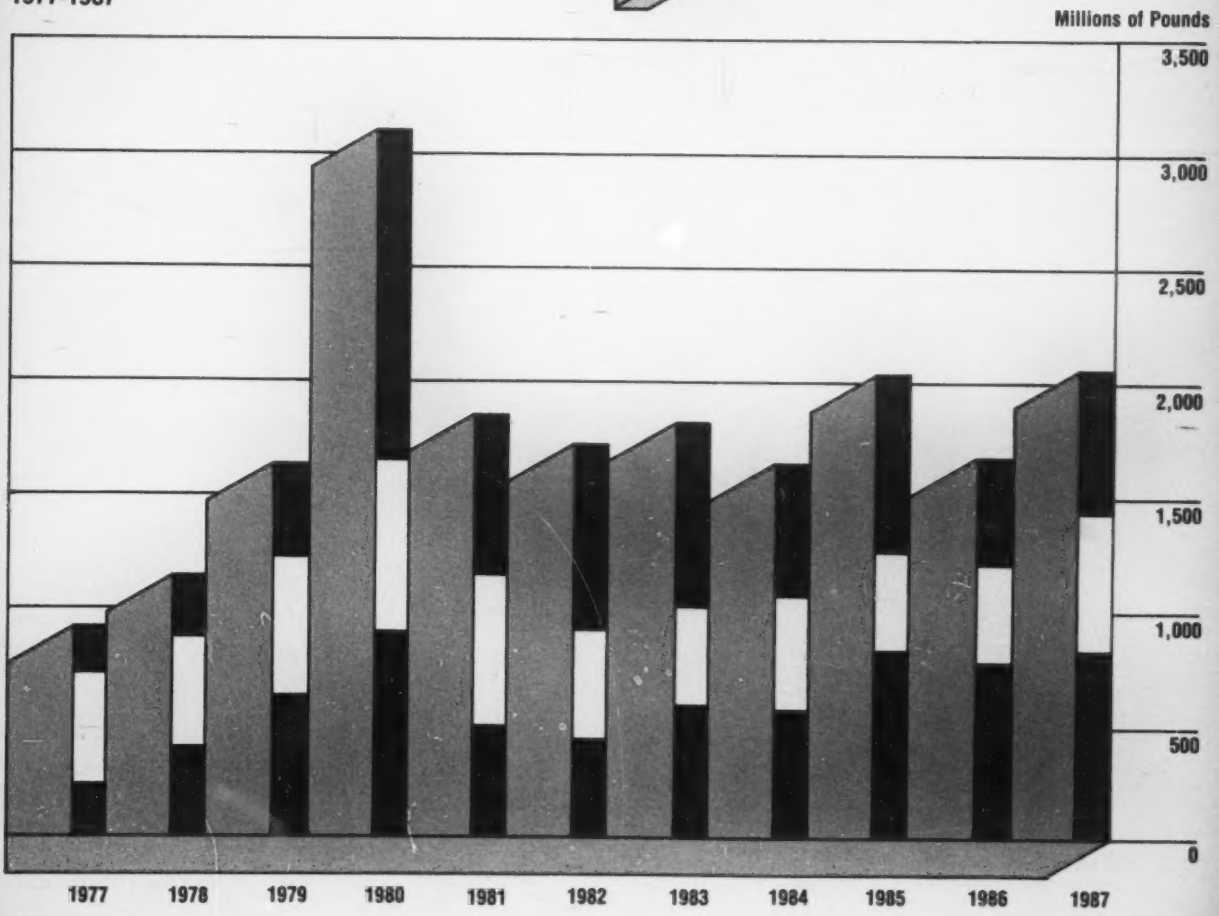
Total aluminum exports during 1987 were 2,068 million pounds, up 23.4 percent from 1986. Ingot exports rose 34.1 percent to 620 million pounds from a 1986 level of 462 million pounds. Semifabricated exports increased 41.7 percent from 449 million pounds in 1986 to 636 million pounds in 1987. Exports of scrap rose from 765 million pounds in 1986 to 812 million pounds in 1987, about 6.2 percent.

Of the 107 countries receiving aluminum from the U.S. in 1987, Japan received 53.8 percent or 1,172 million pounds, (500 ingot, 580 scrap and 32 semifabricated). Exports to Canada were 485 million pounds of which 381 million pounds were semifabricated products and exports to Mexico were 127 million pounds.

DESCRIPTION:

The graph below illustrates the trend of U.S. aluminum exports in the years 1977-1987. In addition to showing the exports of ingot and scrap, the lower portion of the table on pages 36 and 37 shows the detail of exports of semifabricated products for the years 1977-1987. Exports of aluminum by country for 1987 are shown on pages 40 and 41.

U.S. Aluminum Exports 1977-1987



Source: the Aluminum Association

United States Imports and Exports

United States Imports and Exports 1977-1987

Thousands of pounds

PRODUCT	1987	1986	1985	1984	1983
Total Imports	4,171,462	4,426,199	3,223,576	3,353,255	2,465,217
TOTAL INGOT & SEMIFABRICATED	3,750,942	4,062,513	2,935,770	3,034,098	2,255,700
INGOT	2,745,882	2,973,633	1,915,099	1,944,381	1,637,353
SEMIFABRICATED, TOTAL	1,005,060	1,088,880	1,020,671	1,089,717	618,347
Sheet & plate, Total	765,311	836,049	770,093	884,498	536,059
Circles & disks	35,424	32,059	25,936	29,144	19,131
Other	729,887	803,990	744,157	855,354	516,929
Foil, Total	64,255	60,285	57,176	54,005	29,238
Over .00035"	39,491	33,218	37,733	27,045	12,345
Not over .00035"	21,853	24,113	17,891	23,631	15,226
Capacitor	2,910	2,954	1,552	3,329	1,666
Rod & bar	117,314	128,922	128,703	82,269	27,435
Wire	11,545	14,487	21,105	26,966	6,444
Cable	5,594	4,930	4,472	5,337	2,021
Angles, shapes, etc.	18,687	18,459	16,312	12,690	3,478
Pipe & tube	10,270	13,452	7,381	8,981	3,170
Powder & paste	12,084	12,296	15,430	14,971	10,503
SCRAP	415,818	357,847	281,091	303,522	195,049
DROSS & SKIMMINGS	4,703	5,839	6,715	15,634	14,469
Total Exports	2,067,956	1,676,082	2,030,140	1,646,169	1,819,397
TOTAL INGOT & SEMIFABRICATED	1,255,570	910,790	1,204,187	1,076,484	1,240,875
INGOT	619,859	462,068	765,648	572,316	795,216
SEMIFABRICATED, TOTAL	635,712	448,722	438,539	504,169	445,659
Sheet & plate	502,877	359,818	329,311	402,992	318,667
Foil	32,003	13,256	12,031	11,917	10,952
Rod & bar	23,005	21,262	22,853	22,133	24,374
Wire, bare	10,141	6,755	8,932	6,162	9,972
Other conductor	1,808	1,139	5,704	5,699	35,845
Angles, shapes, etc.	28,406	15,541	11,686	11,137	10,310
Pipe & tube, Total	14,783	9,736	10,389	10,492	9,480
Electric conduit	3,140	2,845	2,828	1,335	1,730
Other	11,643	6,891	7,561	9,157	7,751
Powder	7,471	6,000	6,278	8,086	5,075
Castings	7,959	9,780	20,190	21,488	18,199
Forgings	7,258	5,435	7,166	4,064	2,785
SCRAP	812,385	765,292	825,953	569,685	578,522
Net Imports*	2,103,506	2,750,117	1,931,436	1,721,263	645,820

Detail may not add to totals due to rounding.
** Imports less exports*

NOTE: Prior to 1977, consult the Aluminum Statistical Review—Historical Supplement.

SOURCE: U.S. Department of Commerce, Bureau of The Census.

1982	1981	1980	1979	1978	1977
1,966,647	1,894,847	1,453,529	1,714,794	2,194,902	1,688,604
1,814,325	1,725,220	1,329,404	1,567,857	2,000,058	1,505,431
1,358,751	1,421,311	1,161,328	1,141,517	1,515,576	1,340,658
455,574	303,909	168,076	426,339	484,482	164,773
414,819	247,139	126,117	357,285	433,684	128,675
16,404	11,673	7,757	21,529	20,473	15,363
398,415	235,466	118,360	355,756	413,211	113,312
19,328	13,430	9,099	17,925	21,451	9,763
8,749	4,791	3,532	6,020	7,489	3,679
8,708	6,608	4,116	10,036	12,626	5,141
1,870	2,031	1,452	1,870	1,336	943
10,057	34,238	16,343	37,959	22,133	18,146
3,202	3,220	2,256	6,902	3,840	3,526
101	8	144	146	77	438
1,272	1,320	1,206	1,664	1,793	2,082
1,279	1,167	682	1,098	868	731
5,515	3,388	12,228	3,361	637	1,415
148,675	163,988	119,603	136,632	184,305	179,789
3,647	5,639	4,522	10,305	10,539	3,384
1,723,285	1,852,324	3,082,645	1,637,086	1,136,424	915,508
1,294,687	1,370,001	2,193,283	1,022,924	747,409	712,182
802,348	688,321	1,429,813	401,300	253,234	195,542
492,339	681,680	763,470	621,625	494,174	516,640
323,074	411,385	425,792	404,509	291,764	344,309
12,933	21,338	37,911	20,566	11,902	13,062
51,980	102,463	136,736	61,510	59,672	27,433
11,791	24,653	57,737	30,129	23,906	15,240
46,953	70,324	29,031	30,600	56,121	58,137
9,298	8,507	25,528	22,402	17,110	8,494
13,157	15,216	16,500	16,178	19,115	21,370
3,218	3,137	1,569	1,901	3,493	7,230
9,939	12,079	14,931	14,277	15,622	14,140
6,082	6,769	16,047	14,356	14,584	14,804
14,359	17,860	14,992	17,840	na	8,146
2,711	3,165	3,195	3,526	na	5,643
428,598	482,323	889,363	614,162	389,015	203,326
243,352	42,523	−1,629,116	77,708	1,058,478	773,096

United States Imports by Product and Country

United States Imports by Product and Country—1987

Thousands of Pounds

Country	Total	Ingot	Scrap Dross and Skimmings	Semi-fabricated Products	Sheet	Plate	Circles & Discs
TOTAL ALL COUNTRIES	4,171,462	2,745,882	420,520	1,005,060	691,904	37,983	35,424
AFRICA	228,570	218,180	—	10,390	7,069	230	435
Egypt	3,153	2,750	—	403	33	—	—
Ghana	203,248	203,248	—	—	—	—	—
South Africa, Rep.	21,900	12,182	—	9,718	6,772	230	435
Other	269	—	—	269	264	—	—
NORTH AMERICA	2,518,388	2,025,794	280,818	211,776	184,088	8,177	6,725
Canada	2,518,388	2,025,794	280,818	211,776	184,088	8,177	6,725
LATIN AMERICA	489,905	283,376	69,353	137,176	10,684	435	2,850
Argentina	46,339	35,718	449	10,171	2,953	41	65
Brazil	165,176	149,025	475	15,677	2,040	35	1,199
Colombia	2,973	40	2,933	—	—	—	—
Mexico	46,012	3,248	33,743	9,021	2,339	—	1,160
Panama	4,541	474	3,967	99	53	—	—
Venezuela	221,362	94,599	25,449	101,314	3,252	359	426
Other	3,503	272	2,337	894	47	—	—
EAST ASIA	242,155	1,716	107	240,332	214,814	684	6,939
Hong Kong	5,292	—	88	5,204	1,442	8	3,743
Japan	230,980	1,192	19	229,770	212,036	627	3,197
Korea, Republic	1,772	446	—	1,326	232	4	—
Taiwan, ROC	4,110	78	—	4,032	1,104	44	—
SOUTH ASIA	157,047	97,860	3,174	56,013	46,910	411	198
Bahrain	61,207	10,942	—	50,265	43,635	411	160
Israel	5,217	157	747	4,313	2,516	—	—
Philippine Republic	7,437	7,437	—	—	—	—	—
Saudi Arabia	1,553	1,553	—	—	—	—	—
United Arab Emirates	79,935	77,178	2,144	613	457	—	—
Other	1,699	593	283	822	302	*	39
EUROPE	355,167	44,251	9,911	301,004	182,590	28,044	18,114
Austria	5,042	—	2,134	2,908	2,427	21	118
Belgium	64,777	597	34	64,146	49,731	411	7,879
France	57,605	1,894	1,298	54,413	33,151	15,826	986
Germany, Fed. Rep.	70,948	16,267	763	53,918	18,480	2,664	1,059
Greece	15,620	2,148	—	13,472	6,904	56	1,324
Italy	10,402	435	151	9,816	5,253	339	1,052
Netherlands	23,649	4,126	2,460	17,062	16,904	—	13
Norway	12,597	5,494	—	7,103	7,09	—	—
Spain	17,364	11,760	—	5,604	4,204	107	488
Sweden	4,594	1	—	4,593	3,259	—	—
Switzerland	7,618	—	—	7,618	1,339	1,236	2,647
Turkey	15,250	90	—	15,160	12,860	41	—
United Kingdom	21,705	1,199	3,072	17,434	1,162	7,255	2,182
Yugoslavia	27,383	238	—	27,145	19,432	54	366
Other	613	*	—	613	386	34	—
OCEANIA	48,559	29,106	3,234	16,218	16,129	2	—
Australia	46,658	27,402	3,097	16,160	16,085	*	—
New Zealand	1,726	1,705	1	20	6	2	—
Other	174	—	136	38	38	—	—
TOTAL WESTERN WORLD	4,039,791	2,700,285	366,596	972,910	662,285	37,983	35,261
OTHER	131,671	45,597	53,924	32,149	29,619	—	163
Hungary	11,954	299	—	11,655	9,145	—	163
Romania	58,516	38,196	—	20,320	20,320	—	—
USSR	58,235	4,444	53,791	—	—	—	—
Other	2,966	2,659	133	174	154	—	—

(*) Indicates less than 500 pounds

Detail may not add due to rounding

Source: U.S. Department of Commerce, Bureau of the Census

Note: Reimports are metal exported for processing and returned for further processing (TSUSA 806.30)

Total Foil	Capacitor Foil	Foil, not Over 0.00035	Foil over 0.00035	Rod and Bar	Wire	ACSR and Bare Cable	Angles, Shapes & Sections	Pipes Tubes & Fittings	Powder and Paste
64,255	2,910	21,853	39,491	117,314	11,545	5,594	18,687	10,270	12,084
638	—	—	638	519	120	—	1,309	70	—
—	—	—	—	370	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
638	—	—	638	149	120	—	1,304	70	—
—	—	—	—	—	—	—	5	—	—
5,254	*	837	4,417	392	4,072	94	1,174	1,024	777
5,254	*	837	4,417	392	4,072	94	1,174	1,024	777
690	—	76	614	99,624	2,959	5,287	9,850	2,696	2,101
—	—	—	—	6,124	862	—	92	34	—
164	—	66	98	4,784	91	37	5,259	511	1,555
—	—	—	—	—	—	—	—	—	—
24	—	—	24	1,143	*	699	1,396	2,026	233
—	—	—	—	—	—	—	46	—	—
—	—	—	—	87,573	1,974	4,551	3,055	124	—
502	—	10	492	—	31	—	1	—	313
9,326	439	4,480	4,407	500	592	148	3,299	3,974	55
—	—	—	—	—	—	—	—	11	—
9,299	439	4,480	4,380	306	180	102	1,371	2,599	54
2	—	—	2	82	2	2	453	547	—
25	—	—	25	112	410	45	1,474	817	2
458	—	—	458	1,273	165	26	1,749	120	4,702
—	—	—	—	1,192	165	—	—	—	4,702
9	—	—	9	81	—	21	1,566	120	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	156	—	—
449	—	—	449	—	1	4	27	—	—
46,419	2,471	16,459	27,488	15,005	3,636	30	1,298	2,220	3,649
319	—	—	319	—	—	—	—	*	22
1,330	—	35	1,295	4,678	111	—	—	*	6
2,698	370	737	1,592	724	824	*	1	161	42
29,246	428	13,306	15,512	143	75	29	224	851	1,147
4,414	—	41	4,373	—	—	—	333	441	—
2,114	1,668	15	432	520	41	—	14	63	419
40	6	34	—	—	3	—	43	54	5
—	—	—	—	*	—	—	4	*	—
18	—	—	18	356	—	—	405	21	5
*	—	*	*	69	7	—	26	36	1,196
2,088	—	1,704	384	274	19	—	3	12	—
2,027	—	—	2,027	124	—	—	108	—	—
628	—	376	251	4,103	820	1	58	499	727
1,350	—	74	1,276	4,015	1,701	—	76	76	75
146	—	137	9	—	34	—	2	7	4
75	—	—	75	—	—	9	2	*	*
72	—	—	72	—	—	—	2	*	*
3	—	—	3	—	—	9	—	—	—
—	—	—	—	—	—	—	—	—	—
62,860	2,910	21,853	38,097	117,314	11,544	5,594	18,681	10,104	11,285
1,394	—	—	1,394	—	1	—	6	167	799
1,380	—	—	1,380	—	—	—	—	167	799
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
14	—	—	14	—	1	—	6	—	—

United States Exports by Product and Country

United States Exports by Product and Country—1987

Thousands of Pounds

Country	Total	Ingot	Waste & Scrap	Semi-fabricated Products	Sheet	Plate	Circles & Discs
TOTAL ALL COUNTRIES	2,067,956	619,859	812,385	635,712	464,687	32,644	5,546
AFRICA	2,861	324	332	2,206	138	85	2
Ghana	282	121	—	161	8	—	1
South Africa, Rep.	523	177	—	346	128	22	—
Sudan	1,267	—	—	1,267	—	—	—
Other	790	26	332	432	2	63	*
NORTH AMERICA	484,584	56,912	46,285	381,387	312,875	13,201	4,349
Bermuda	40	—	—	40	2	—	—
Canada	484,544	56,912	46,285	381,347	312,873	13,201	4,349
LATIN AMERICA	176,347	21,273	54,893	100,181	76,149	2,770	660
Brazil	7,097	224	4,353	2,520	382	1,434	2
Chile	1,361	18	841	503	63	24	2
Colombia	2,604	87	—	2,517	2,201	197	—
Costa Rica	1,333	94	1,111	128	25	1	43
Dominican Rep.	3,508	2,938	34	536	229	6	2
Jamaica	1,582	349	152	1,081	222	46	270
Mexico	127,114	14,990	47,778	64,347	50,194	734	209
Panama	2,724	1,470	463	791	267	29	—
Trinidad	1,220	290	—	930	177	*	20
Venezuela	22,564	16	56	22,492	21,041	262	105
Other	5,240	798	106	4,336	1,347	38	8
EAST ASIA	1,273,582	525,438	671,584	76,560	45,559	6,352	105
Hong Kong	24,781	7,577	1,673	15,531	14,369	107	*
Japan	1,112,405	500,193	580,470	31,742	14,780	4,323	100
Korea, Rep. of	41,732	6,933	13,915	20,884	10,158	1,213	—
Taiwan, ROC	94,664	10,734	75,526	8,403	6,252	710	6
SOUTH ASIA	38,499	12,035	1,947	24,517	6,969	790	86
Indonesia	3,579	429	—	3,151	632	102	—
Israel	6,069	575	—	5,494	2,211	633	—
Kuwait	2,128	—	—	2,128	1,703	—	—
Malaysia	1,237	1,101	36	100	20	6	—
Saudi Arabia	7,108	8	217	6,883	1,291	22	8
Singapore	9,284	7,237	341	1,706	542	19	66
Thailand	4,909	2,629	314	1,967	88	2	—
United Arab Emirates	2,088	—	550	1,538	3	—	—
Other	2,097	57	489	1,551	478	7	11
EUROPE	84,598	3,602	36,272	44,724	19,300	9,084	324
Belgium	4,827	23	2,761	2,042	1,179	77	—
France	7,589	52	4,910	2,627	519	1,210	2
Germany, F.R.	12,565	195	6,827	5,543	2,056	1,955	60
Ireland	4,299	61	—	4,238	4,058	13	5
Italy	15,796	565	7,412	7,820	1,962	1,363	133
Netherlands	16,529	1,237	10,735	4,558	1,952	895	—
Spain	3,456	11	1,416	2,029	1,147	730	8
Sweden	1,853	132	—	1,721	745	277	—
United Kingdom	16,312	1,208	2,085	13,020	5,303	2,409	36
Other	1,370	117	127	1,126	378	155	80
OCEANIA	3,575	101	605	2,869	836	271	19
Australia	3,104	101	605	2,398	795	266	14
Other	472	1	—	471	41	6	5
TOTAL WESTERN WORLD	2,064,048	619,685	811,919	632,443	461,826	32,554	5,546
OTHER	3,908	173	466	3,269	2,861	90	—
China, P.R.	3,903	173	466	3,264	2,860	88	—
Other	5	—	—	5	1	2	—

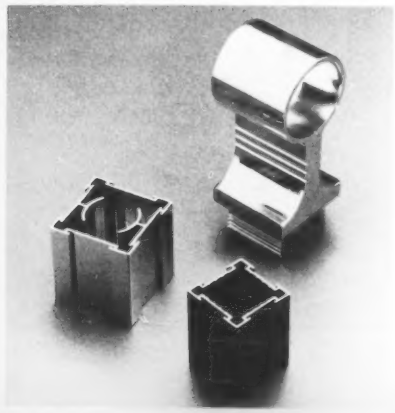
(*) Less than 500 pounds

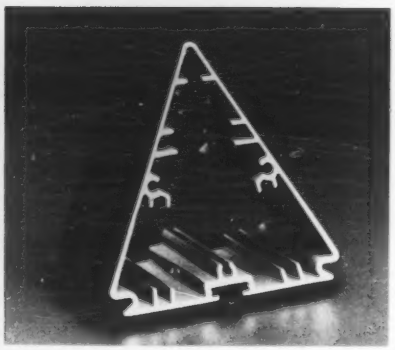
Detail may not add due to rounding

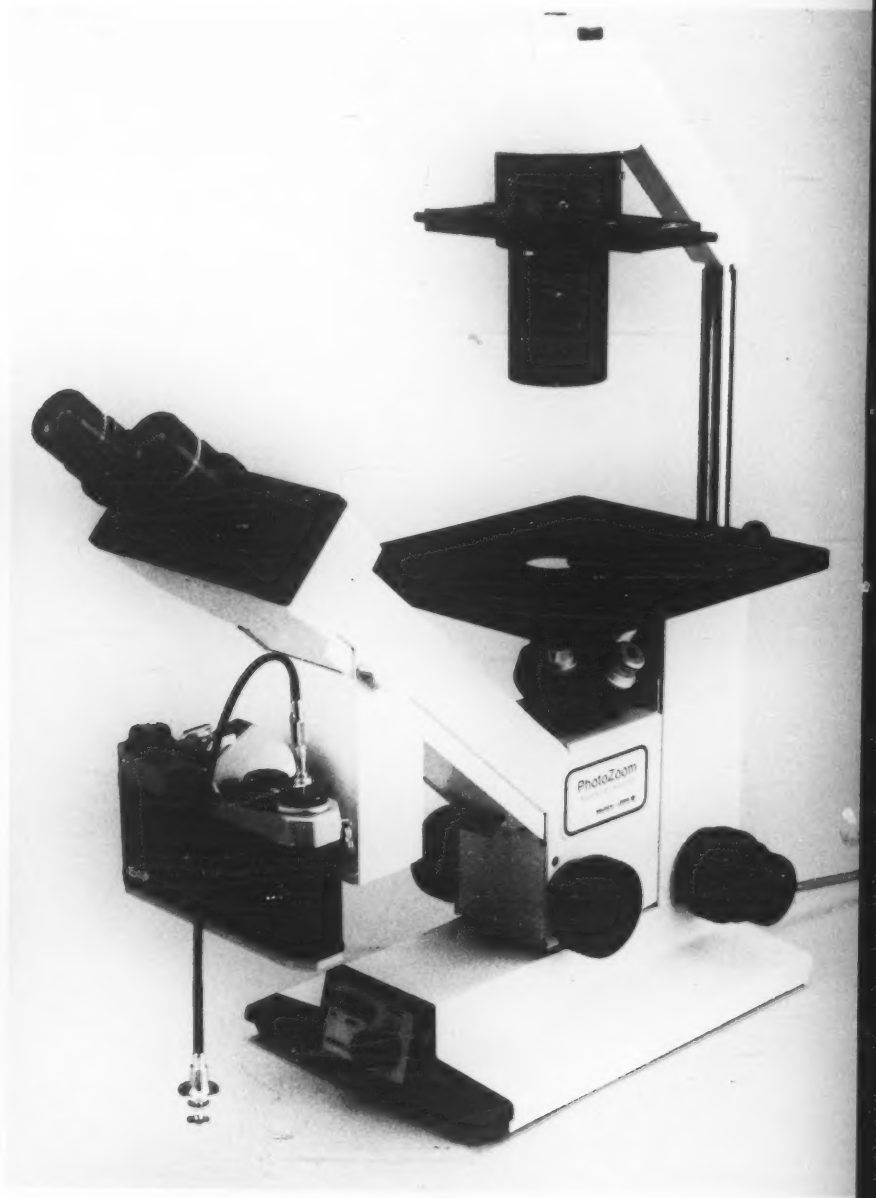
Source: U.S. Department of Commerce, Bureau of the Census

Foil	Rod and Bar	Wire	ACSR & Bare Cable	Angles, Shapes & Sections	Total Pipe & Tube	Electrical Conduit	Other Pipe & Tube	Powder & Paste	Castings	Forgings
32,003	23,005	10,141	1,808	28,406	14,783	3,140	11,643	7,469	7,949	7,211
167	94	1,354	—	60	34	5	30	263	5	5
—	81	42	—	11	6	*	6	12	—	*
3	13	9	—	5	10	—	10	149	5	4
—	—	1,267	—	—	*	*	—	—	—	—
164	—	37	—	44	18	5	14	103	—	*
16,499	8,869	3,544	517	3,072	7,213	2,822	4,391	2,299	4,985	3,964
5	—	18	—	5	11	5	6	—	—	—
16,494	8,869	3,526	517	3,068	7,202	2,817	4,385	2,299	4,985	3,964
3,049	2,958	3,247	1,176	1,539	4,708	115	4,593	1,967	1,682	274
27	49	9	—	258	114	52	62	77	3	166
—	11	*	13	*	141	*	141	247	1	2
12	84	5	—	*	—	—	—	14	5	—
1	3	—	3	—	52	2	50	—	—	—
68	115	12	1	85	14	14	1	—	—	3
92	18	294	7	9	124	—	124	—	—	—
1,459	2,183	2,005	966	180	3,692	25	3,668	1,069	1,555	101
306	25	43	—	*	53	—	53	68	*	—
314	37	11	—	304	66	—	66	—	—	—
27	209	327	8	*	106	*	105	342	65	—
745	225	542	179	701	346	22	324	151	51	2
751	2,108	372	35	18,153	1,315	90	1,225	1,419	109	280
373	52	72	—	481	62	45	17	13	2	1
294	1,903	45	21	8,894	321	36	285	748	79	235
14	37	151	—	8,490	553	8	544	227	1	39
70	116	105	14	288	380	1	379	432	27	5
9,853	2,105	1,102	10	1,192	202	77	125	337	255	1,616
2,241	122	2	—	6	9	7	3	1	1	35
32	569	131	—	162	45	—	45	58	79	1,576
369	—	—	—	2	53	50	3	—	—	1
8	8	54	—	—	—	—	—	3	1	—
4,840	5	596	*	80	38	19	19	—	2	—
726	44	56	10	1	22	—	22	74	146	—
166	1,154	91	—	442	*	—	*	8	15	—
1,276	—	—	—	258	1	1	—	—	—	—
196	203	172	—	242	33	—	33	193	11	5
1,591	6,073	479	70	3,721	1,052	23	1,029	1,158	903	933
52	55	45	—	205	25	—	25	*	181	224
126	116	78	3	163	23	14	9	165	168	54
375	366	102	24	16	194	1	193	139	233	23
2	1	*	—	118	33	—	33	—	8	—
45	3,125	15	—	990	55	—	55	77	1	54
83	934	18	—	381	49	7	42	154	37	56
9	15	2	—	12	3	*	3	7	*	96
495	14	3	7	110	18	—	18	24	5	23
320	1,426	97	29	1,630	586	1	585	542	239	403
84	20	119	8	96	67	—	67	51	31	—
93	789	43	—	455	258	8	251	12	7	63
52	781	25	—	143	241	—	241	12	7	63
41	8	18	—	312	17	8	10	—	—	—
32,003	22,996	10,141	1,808	28,191	14,783	3,140	11,643	7,454	7,946	7,135
—	10	—	—	215	—	—	—	14	3	75
—	10	—	—	215	—	—	—	13	3	75
—	—	—	—	*	—	—	—	1	—	—

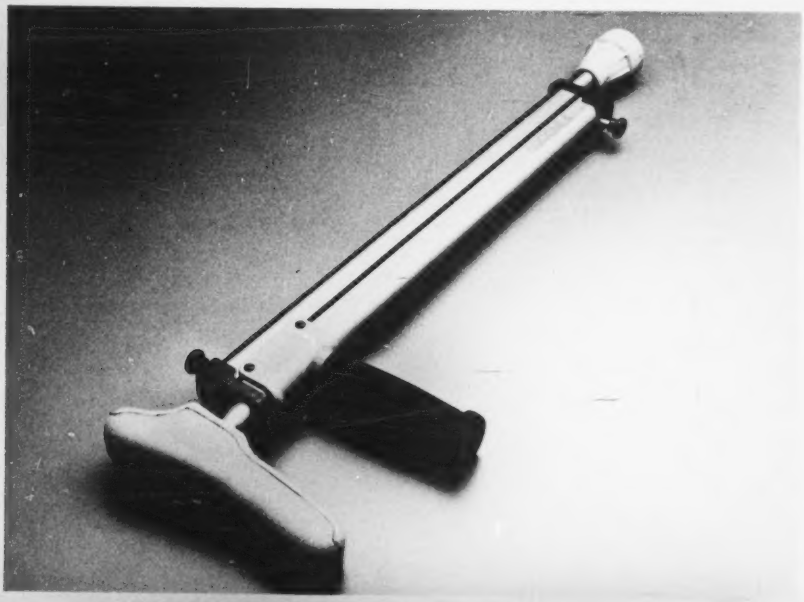
World Aluminum Statistics

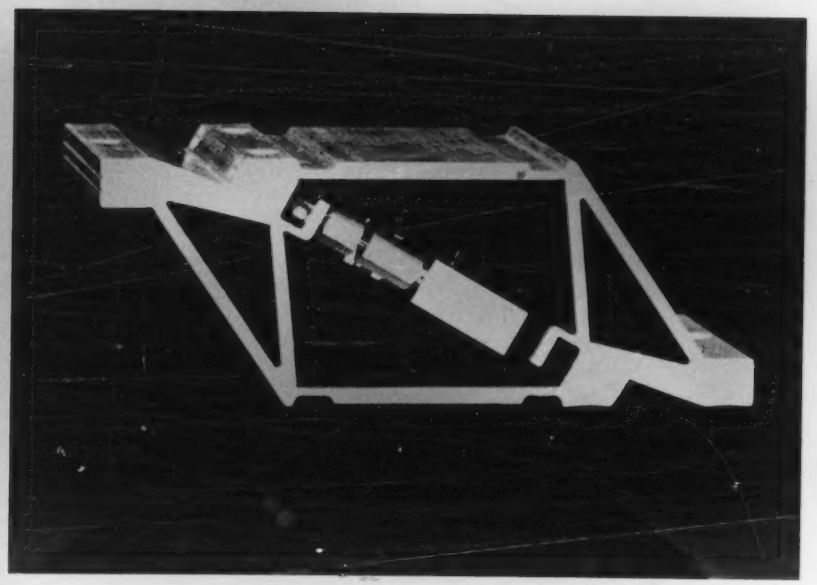






Six of the 12 winners in the 1988 International Aluminum Extrusion Design Competition demonstrate the versitility of extruded aluminum shapes. The inverted microscope (above) won the $2,500 grand prize.





The aluminum industry is international by its very nature. From the extraction of its basic source material at bauxite sites located in a number of countries throughout the world to its fabrication and distribution in every nation on earth, the aluminum industry should be viewed in a world-wide perspective. This section attempts to provide data on two of the key aspects of world aluminum, world primary aluminum production and the apparent per capita consumption of aluminum for selected countries.

World production of primary aluminum in 1987 is estimated to have been 16,016 thousand metric tons, up 4.4 percent from 1986. World primary aluminum production is presented by country for the years 1977-1987 on page 45.

Data on the consumption of aluminum on a per capita basis are presented for 41 countries. These countries represent three-quarters of the world's production of primary aluminum. The data are presented in a uniform statistical format for the years 1977-1987. The data for supply and consumption show ingot and mill product detail for imports and exports. Midyear population figures are presented as part of the calculation of consumption on a per capita basis for each country.

World Aluminum Statistical data is presented in metric tons, with one exception: the per capita aluminum consumption summary on page 47 is expressed in pounds per person per year. Individual country data tables show per capita consumption in kilograms.

World Primary Aluminum Production

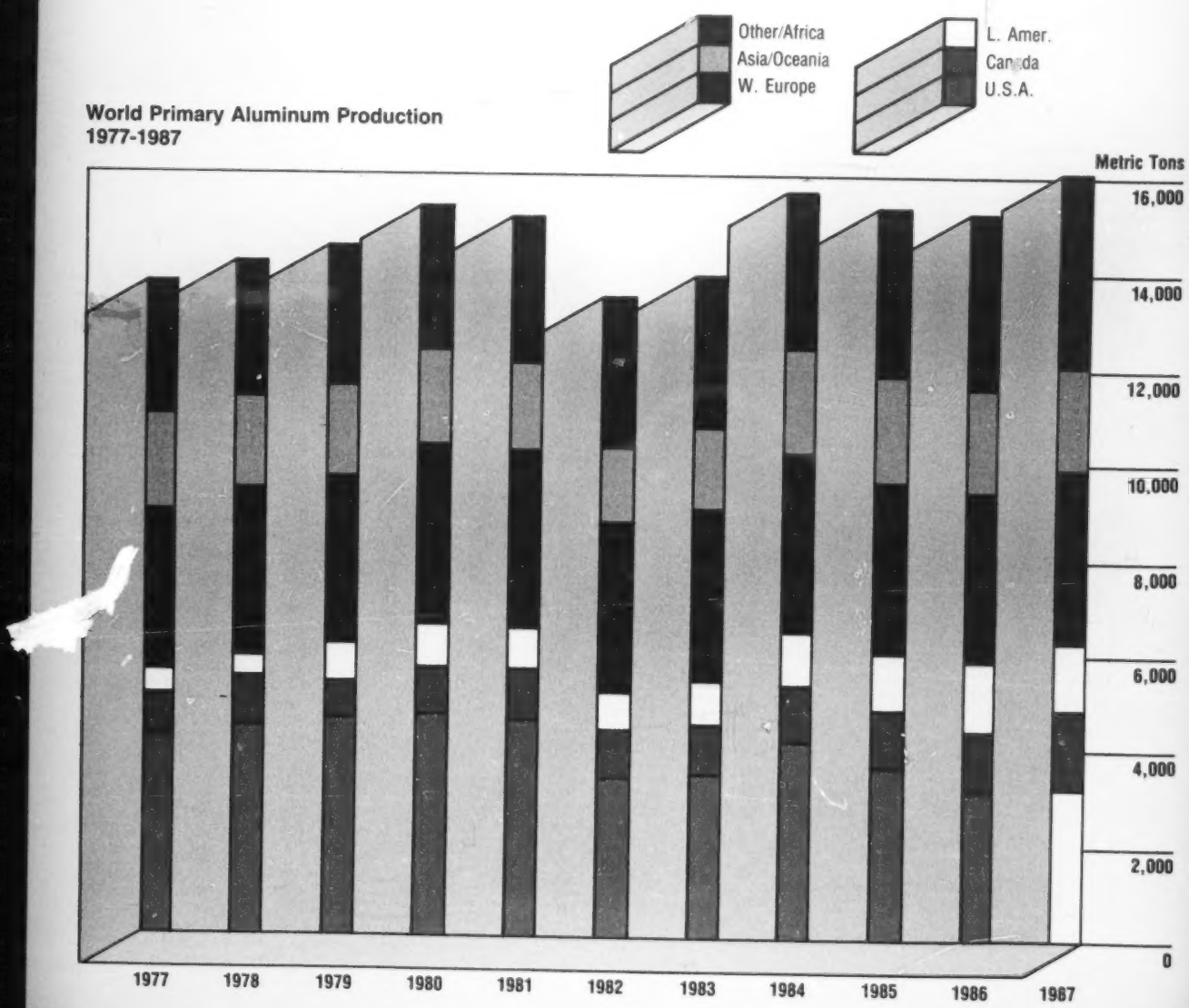
WORLD PRODUCTION UP 4.4 PERCENT

Estimated 1987 world production of primary aluminum totaled 16,016 thousand metric tons, up 4.4 percent from the revised estimate of 15,341 thousand tons in 1986 according to Bureau of Mines data.

Over the decade 1977-1987 world production increased 16.2 percent, an annual growth rate of 1.1 percent.

The United States accounted for 20.9 percent of the world's 1987 production while Europe accounted for 22.7 percent. The remaining 56.4 percent from Asia (6.0 percent), Canada (9.6 percent), South America (9.2 percent), Oceania (3.7 percent), Africa (3.6 percent), and others (20.4 percent).

World Primary Aluminum Production 1977-1987



World Primary Aluminum Production
1977-1987

Thousands of Metric Tons

Country	1987p	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
TOTAL WORLD[1]	16,016	15,341r	15,367r	15,714r	13,904r	13,433	15,079	15,383	14,555	14,131	13,779
AFRICA	575	556r	513r	410	420	500	473	437	400	342	376
Cameroon	80	84r	90r	73	77	79	65	43	44	49	55
Egypt	175	175	209	170	140	141	134	120	102	101	89
Ghana	150	125	49	—	42	174	190	188	169	112	153
South Africa	170	172r	165	167	161	106	84	87	86	81	78
NORTH AMERICA	4,873	4,401r	4,782	5,326	4,444	4,339	5,605	5,722	5,377	5,407	5,091
Canada	1,530	1,364r	1,282	1,227	1,091	1,065	1,116	1,068	820	1,049	973
United States	3,343	3,037	3,500	4,099	3,353	3,274	4,489	4,654	4,557	4,358	4,118
LATIN AMERICA	1,470	1,399r	1,157r	1,052r	938r	795	788	821	693	408	361
Argentina	155	150	140	138r	133	138	134	133	119	49	50
Brazil	840	758r	549r	455	401	299	256	261	239	186	167
Mexico	43	37r	43	44	40	41	43	43	44	44	43
Suriname	5	30r	29r[1]	29	29r	43	41	55	64	55	58
Venezuela	427	424[1]	396	386	335	274	314	328	228	74	44
EAST ASIA[1]	60	159	245	305	269	376	820	1,174	1,089	1,129	1,237
Japan	41	140	227	287	256	351	771	1,091	1,011	1,058	1,188
Korea, Republic of	19	19	18	18	13	15	18	18	22	20	18
Taiwan	—	—	—	—	—	10	31	64	56		30
SOUTH ASIA	899	899r	902r	880	711	651	502	386	383	395	373
Bahrain	194	178	175r	177	172	171	130	126	126	122	122
India	250	257r	260	269	204	217	213	185	211	214	179
Indonesia	210	219r	217	199	115	33	—	—	—	—	—
Iran	40	40r	43r	42	39	45	13	16	14	25	21
Turkey	50	50	54	38	30	36	40	34	32	33	52
United Arab Emirates	155	155	153r	155	151	149	106	25	—	—	—
EUROPE	3,630	3,668r	3,596r	3,776r	3,581r	3,521	3,723	3,747	3,584	3,507	3,462
Austria	93	93r	94	96	94	94	94	94	93	92	92
France	300	322r	293	342	361	390	436	432	396	391	399
Germany, Fed. Rep.	730	765	745	777	743	723	729	731	741	740	742
Greece	130	126r	125	136	136	135	146	146	141	144	130
Iceland	85	76	73	80	76	75	74	73	73	73	74
Italy	240	243	221	230	196	233	274	271	269	270	260
Netherlands	280	266r	251	249	235	251	262	259	258	261	241
Norway	725	712	712	765	713	638	634	653	664	639	622
Spain	350	350r	370	381	358	367	397	386	259	212	211
Sweden	76	77r	84	83	82	79	83	82	82	82	83
Switzerland	80	80r	73	79	76	75	82	86	83	80	80
United Kingdom	297	276r	275	288	253r	241	339	374	359	347	350
Yugoslavia	244	282r	280r	270r	258	220	173	161	168	176	177
OCEANIA	1,234	1,055r	1,092	1,001	697	544	533	458	424	415	393
Australia	1,004	882	851	758	478	381	379	303	269	263	248
New Zealand	230	173r	241	243	219	163	154	155	154	152	145
OTHER	3,275	3,204r	3,080	2,964	2,844	2,707	2,635	2,638	2,605	2,529	2,488
China, P.R.[1]	410	410	410	400	400	380	350	360	363	363	349
Czechoslovakia[1][2]	33	33r	32	32	36	34	33	38	37	37	36
German D.R.[1]	60	60	60	58	57	58	60	60	60	65	65
Hungary	74	74	74	74	74	74	74	73	72	72	72
Korea, Peop. Rep.	10	10	10	10	10	10	10	10	10	10	10
Poland[3]	48	48	47	46	44	43	66	95	96	100	104
Romania	240	269r	247	244	223	208	242	241	217	213	209
U.S.S.R.[1]	2,400	2,300	2,200	2,100	2,000	1,900	1,800	1,760	1,751	1,669	1,642

Detail may not add due to rounding

(1) Estimated by the Bureau of Mines, U.S. Department of Interior
(2) Includes secondary unalloyed ingot
(3) Includes primary alloyed ingot
r-revised
p-preliminary

SOURCE: Bureau of Mines, U.S. Department of Interior
CONVERSION FACTOR: One metric ton = 2,204.6 pounds.

Aluminum Supply and Apparent Consumption—Selected Countries

PER CAPITA CONSUMPTION DOWN 1.5 PERCENT

Per capita aluminum consumption for those countries which provided both 1986 and 1987 data, decreased an average of 1.5 percent in 1987 as compared with 1986. Of the 28 countries which responded to the 1987 survey, 18 (67%) showed increased usage in 1987 while the remainder, 10 (33%) indicated decreased or steady usage.

The United States was again the largest user of aluminum on a per capita basis (60.4 pounds; 27.4 Kg.). Other large users were W. Germany (57.8 pounds; 25.5 Kg.) Japan (49.2 pounds; 22.3 Kg.), and Singapore (49.8 pounds; 22.6 Kg.).

Per Capita Aluminum Consumption Formula

1. + Primary aluminum production
2. ± Government stockpile adjustment
3. + Imports of ingot
4. + Imports of mill products (aluminum alloy weight)
5. + Recovery of secondary aluminum alloys (from domestic and imported scrap)
6. − Exports of ingot
7. − Exports of mill products (aluminum alloy weight)
8. = Apparent aluminum consumption
9. + Beginning of year inventory
10. − End of year inventory
11. ± Inventory change
12. = Aluminum consumption (with inventory change)
13. ÷ Mid-year population
14. = Per capita consumption (Kg.) (without inventory change)
15. = Per capita consumption (Kg.) (with inventory change)

DESCRIPTION:

The Aluminum Association, in conjunction with industry associations in foreign countries, and, in some instances appropriate government agencies, is developing a joint program to compile uniform statistical data showing total supply and apparent consumption. Total supply for an individual country consists of primary production, imports, and secondary recovery. Apparent consumption is equal to the sum of these sources of total supply less exports and inventory changes. Production of primary aluminum for the foreign countries is tabulated for the years 1977-1987 on page 45.

The tables on pages 48-61 show total supply and apparent consumption corresponding to the above format for the following countries:

Argentina
Australia
Austria
Bahrain
Belgium
Brazil
Cameroon
Canada
Denmark
Finland
France
Germany, F.R.
Greece
Iceland
Indonesia
Iran
Ireland
Israel
Italy
Japan
Korea, Rep.
Mexico
Netherlands
New Zealand
Nicaragua
Norway
Panama
Philippines
Portugal
El Salvador
Saudi Arabia
Singapore
South Africa
Spain
Sweden
Switzerland
Taiwan
Turkey
United Kingdom
United States
Venezuela

The format for compiling total supply and apparent consumption data is shown below.

In order to develop a basis for showing relative aluminum usage by country and to provide a measure of trend over time, per capita consumption data have been calculated for each country. For this purpose mid-year population estimates have been used. It is important to emphasize that these estimates are not the only way of measuring relative consumption data among countries. Obviously, the composition of a country's population, standard of living, industrialization, climate, availability and economies of other materials, and a number of other important considerations affect the per capita use of aluminum. The formula is used because it is simple and permits the Association to compile data for more countries, with their cooperation, than can be compiled using more detailed information.

When data for individual lines are not available or are not appropriate, they are omitted. Inventory changes cover suppliers' inventories only. Consumption estimates exclude changes in customer inventories.

The components of the formula are numbered and cross referenced to the country details on pages 41-61.

A summary of per capita consumption covering the years 1977-1987 for each of the countries is shown on page 47 in pounds.

Conversion factor: One metric ton = 2,204.6 pounds.

Per Capita Aluminum Consumption of Selected Countries 1977-1987

Pounds per person per year (a)

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
Argentina*	5.5	4.6	2.6	5.5	5.3	4.8	4.0	4.8	6.9	4.9	5.9
Australia*	41.4	38.1	39.8	36.6	33.8	36.7	41.4	38.9	37.6	32.5	31.3
Austria*	31.3	32.2	27.7	28.9	25.5	23.8	26.5	27.6	25.0	23.7	24.7
Bahrain*	—	9.7	23.8	22.0	18.9	10.8	13.2	20.3	27.5	15.1	22.5
Belgium	17.0	22.3	21.2	27.1	21.0	20.6	16.1	20.6	20.3	19.6	21.4
Brazil*	6.4	6.8	5.9	4.8	4.9	5.5	5.3	6.6	6.4	5.8	5.8
Cameroon	4.0	4.6	4.8	4.4	4.5	3.6	3.5	6.4	4.7	3.9	5.3
Canada*	48.7	42.3r	45.0r	43.7r	32.2r	37.3r	36.1	35.5	37.1	35.7	31.5
Denmark	19.0	20.9r	19.4r	20.1r	30.2	30.5	27.3	27.6	31.8	32.2	28.0
Finland	11.7	13.0r	7.5r	7.6	11.2r	14.6	14.1	14.3	16.5	12.0	19.3
France*	31.5	31.1r	28.2r	27.6r	28.9r	29.1r	27.8r	31.5r	28.1	25.4	26.0
Germany, F.R.*	57.8	56.2	54.7	49.1	48.1	43.0	44.8	48.6	48.6	42.9	41.8
Greece	na	12.3	8.5	11.4	10.6	10.6	13.0	13.0	9.4	8.7	9.0
Iceland	23.1	18.1	17.3	19.3	27.8	23.4	34.1	21.9	20.4	15.9	18.9
Indonesia	na	na	na	na	na	na	na	na	0.6	0.6	0.6
Iran*	na	na	na	na	na	na	na	na	na	na	4.3*
Ireland	11.7	11.0	10.0	11.3	8.3	8.8	9.1	9.6	10.9	10.6	7.9
Israel	na	na	na	na	na	na	na	na	na	na	9.4
Italy*	36.2	32.2	30.1	29.6	29.3	27.1	27.6	32.4	28.0	24.7	24.3
Japan*	49.2	39.7	45.3	39.7	44.1	42.5	41.9	45.6	42.8	42.1	35.4
Korea, Republic of	na	na	9.9	9.9r	9.3	7.5	6.8	4.2	7.1	7.1	5.3
Mexico*	2.6	2.6	4.4	3.5	2.5	4.9	6.5	5.6	4.9	4.1	2.6
The Netherlands*	32.6	33.1r	30.2r	27.6	23.6	24.9r	20.1	27.2	26.0	23.0*	25.1*
New Zealand*	26.2	22.5	22.2	20.8	18.4	15.4	20.5	17.2	19.0	17.1	17.6
Nicaragua	na	na	na	na	na	na	na	na	na	0.5	1.3
Norway*	32.0	40.6	45.0	48.1	29.4	49.8	41.7	50.0	53.1	46.1	50.9
Panama	3.7	1.8	1.7	4.9	3.2	1.8	2.2	2.0	2.0	1.5	1.8
Philippines, Rep. of	0.4	0.2r	0.2r	0.4r	0.7r	0.9r	0.4	0.8	1.5	0.8	1.0
Portugal	na	10.0	8.4	6.8	9.9	11.0	11.0	8.5	7.6	8.6	6.9
El Salvador	0.7	0.4	0.1	0.5	1.2	0.5	0.6	0.4	1.0	1.0	0.4
Saudi Arabia	na	13.0	30.1	19.8	46.1	9.4	25.1	24.8	19.0	17.5	14.1
Singapore	49.8	25.6	25.8	26.1	22.9	23.0	25.3	20.1	20.4	15.0	15.1
South Africa*	na	9.3	9.3	9.4	9.2	9.0	10.0	9.9	5.8	5.1	5.2
Spain*	14.1	12.6	9.9r	9.7	11.8	12.1	11.3	14.2	12.8	12.5	14.1
Sweden*	47.2	45.2r	42.5	43.9	41.1	38.8	34.2	34.4	36.9	32.6	34.5
Switzerland*	41.7	44.8	42.2	40.1	33.0	33.3	34.0	37.7	31.4	29.8	28.6
Taiwan, Republic of China*	na	na	17.1	12.6	19.6	13.7	14.5	13.4	15.0	12.8	10.5
Turkey	7.3	7.3r	6.6r	5.5r	4.6r	5.3r	8.8r	2.4r	2.4	2.4r	4.3
United Kingdom	24.0	22.7	22.1	23.6	21.9	20.3	20.7	21.6	22.1	26.6	26.4
United States*	60.4	58.0r	58.7	59.3	57.7	51.0	55.2	56.8	65.8	65.9	60.3
Venezuela*	na	14.8	10.4	13.2	14.1	13.9	9.0	15.2	14.8	11.3	9.7

Adjusted for inventory change
r — Revised
na — Not available at publication time
e — Estimated

(a)—See individual country tables for kilogram measures.

Per Capita Aluminum Consumption

ARGENTINA, REPUBLIC OF

Thousands of Metric Tons

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	153.0	147.6	136.2	133.7	132.8	137.5	134.1	133.1	118.4	49.4	52.4
3. + Imports of Ingot	—	—	—	—	—	—	—	—	—	—	0.1
4. + Imports of Mill Products	4.0	1.4	1.0	0.9	1.1	10.5	5.1	4.0	1.4	0.5	0.3
5. + Recovery of Secondary	7.8	6.5	3.7	7.5	7.0	6.0	5.0	7.0	8.0	8.0	8.8
6. − Exports of Ingot	13.7	34.8	66.1	30.1	43.8	67.6	88.2	63.4	31.3	7.5	—
7. − Exports of Mill Products	73.3	60.6	45.1	29.7	16.5	16.4	11.3	8.9	4.1	10.2	3.4
8. = Apparent Aluminum Consumption	77.8	60.2r	29.7	82.3	80.6	70.0	44.7	71.8	92.4	40.3	58.2
11. + Inventory Change	−0.6	−5.5	−7.1	6.5	8.6	7.0	−6.8	10.0	6.0	−18.6	−12.0
12. = Aluminum Consumption	78.4	65.7r	36.8	75.8	72.0	63.0	51.5	61.8	86.4	58.9	70.2
13. Mid-Year Population (Millions)	31.7	31.0r	30.6	30.1	29.6	29.2	28.7	28.2	27.8	26.5	26.1
14. = Per Capita Consumption (kg)(1)	2.5	1.9	1.0	2.7	2.7	2.4	1.6	2.5	3.3	1.5	2.2
15. = Per Capita Consumption (kg)(2)	2.5	2.1	1.2	2.5	2.4	2.2	1.8	2.2	3.1	2.2	2.7

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
r—revised

Source: Ministerio de Defensa and Aluminio Argentino, SAIC

AUSTRALIA

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	1,024.2	875.0	851.2	756.7	474.1	380.2	378.7	302.5	273.2	266.4	215.6
3. + Imports of Ingot	—	0.1	0.6	0.5	4.5	13.2	8.4	8.0	3.5	0.2	—
4. + Imports of Mill Products	12.4	8.4	10.2	8.7	6.4	13.1	14.4	10.7	8.1	3.6	4.1
5. + Recovery of Secondary	39.0	30.0	45.6	43.3	37.7	40.7	44.4	38.0	30.5	24.4	24.6
6. − Exports of Ingot	737.0	588.0	577.2	477.3	215.8	185.6	122.6	35.6	63.1	76.3	68.7
7. − Exports of Mill Products	57.9	56.4	54.0	58.8	49.5	32.6	25.4	18.4	16.1	4.8	3.3
8. = Apparent Aluminum Consumption	280.7	269.1	276.4	273.1	257.4	229.1	297.9	305.3	236.1	213.6	172.4
11. + Inventory Change	−24.3	−6.5	−8.5	14.6	21.7	−23.7	−19.0	47.4	−9.7	3.8	5.1
12. = Aluminum Consumption	305.0	275.6	284.9	258.5	235.8	252.7	316.9	257.9	245.8	209.7	167.3
13. Mid-Year Population (Millions)	16.2	16.0	15.8	15.5	15.4	15.2	14.9	14.6	14.4	14.2	14.1
14. = Per Capita Consumption (kg)(1)	17.3	16.8	17.5	17.6	16.7	15.1	20.0	20.9	16.4	15.0	12.2
15. = Per Capita Consumption (kg)(2)	18.8	17.3	18.1	16.6	15.3	16.6	21.3	17.7	17.1	14.8	11.9

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

Source: Aluminium Development Council—Australia

AUSTRIA

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	93.4	92.5	94.1	95.8	94.2	93.9	94.2	94.4	92.7	91.3	91.8
3. + Imports of Ingot	61.3	78.9	65.4	61.4	40.2	38.7	33.2	35.2	30.7	14.9	19.2
4. + Imports of Mill Products	63.6	54.6	54.9	52.3	48.5	42.4	37.6	39.2	36.8	29.9	29.0
5. + Recovery of Secondary	27.2	24.7	21.1	21.6	16.1	14.2	13.8	14.3	8.7	9.3	10.6
6. − Exports of Ingot	33.7	28.3	26.7	25.5	25.6	25.6	25.0	9.8	10.3	11.7	8.7
7. − Exports of Mill Products	116.9	105.3	110.1	100.9	101.4	78.6	69.1	66.4	74.3	67.7	56.3
8. = Apparent Aluminum Consumption	94.9	117.3	98.7	105.6	72.0	85.0	84.6	107.0	84.3	66.0	85.6
11. + Inventory Change	12.5	7.1	4.5	7.0	−14.7	3.8	−5.4	13.0	−0.6	−14.6	1.8
12. = Aluminum Consumption	107.4	110.2	94.2	98.6	86.7	81.2	90.0	94.0	84.9	80.6	83.8
13. Mid-Year Population (Millions)	7.6	7.6	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
14. = Per Capita Consumption (kg)(1)	12.5	15.5	13.2	14.1	9.6	11.3	11.3	14.3	11.2	8.8	11.4
15. = Per Capita Consumption (kg)(2)	14.2	14.6	12.6	13.1	11.6	10.8	12.0	12.5	11.3	10.8	11.2

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

Source: Fachverband der Metallindustrie Österreichs

Detail may not add to totals due to rounding.

BAHRAIN

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	182.0	176.6	175.5	175.8	171.7	171.0	142.0	126.1	127.1	123.1	124.1
5. + Recovery of Secondary	—	1.5	—	—	—	1.5	—	—	—	—	—
6. − Exports of Ingot	129.0	199.9	133.0	168.3	190.5	157.0	83.0	78.0	131.1	134.1	118.0
7. − Exports of Mill Products	33.0	25.0e	15.2	13.2	18.0	12.0	15.0	17.0	6.0	5.0	3.0
8. = Apparent Aluminum Consumption	20.0	−46.8e	27.3	−5.7	−36.8	3.5	44.0	31.1	−10.0	−16.0	3.1
9. + Beginning Inventory	16.0	64.7	41.9	51.6	91.7	90.0	48.0	20.0	34.0	52.1	52.1
10. − Ending Inventory	13.0	16.1	64.7	41.9	51.6	91.7	90.0	48.0	20.0	34.0	52.1
11. = Inventory Change	−3.0	−48.6	22.8	−9.7	−40.1	1.7	42.0	27.9	−14.0	−18.1	0.0
12. = Aluminum Consumption	23.0	1.8e	4.5	4.0	3.3	1.8	2.0	3.2	4.0	2.1	3.1
13. Mid-Year Population (Millions)	.416	0.411	0.400	0.400	0.384	0.371	0.351	0.335	0.320	0.305	0.293
14. = Per Capita Consumption (kg)(1)	48.1	−113.8	67.3	−14.3	−95.8	9.4	125.4	92.9	−31.2	−52.3	10.5
15. = Per Capita Consumption (kg)(2)	55.3	4.4e	11.3	10.0	8.6	4.9	5.7	9.5	12.5	6.8	10.5

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
e—Estimated

Source: Aluminium Bahrain B.S.C.

BELGIUM

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
3. + Imports of Ingot	315.5	307.4	307.9	311.0	289.7	267.4	245.0	252.5	252.8	266.8	238.4
4. + Imports of Mill Products	121.8	109.9	95.7	93.8	90.5	86.9	62.9	64.9	87.1	76.8	75.3
5. + Recovery of Secondary	—	—	—	—	—	—	—	—	—	1.0	3.0
6. − Exports of Ingot	27.6	24.9	23.0	10.3	17.3	13.8	29.7	19.6	10.8	10.2	13.1
7. − Exports of Mill Products	333.5	289.4	286.5	280.6	269.1	248.5	206.3	205.1	245.4	232.3	219.4
8. = Apparent Aluminum Consumption	76.2	103.0	94.1	113.9	93.8	92.0	71.9	92.7	83.7	102.2	84.3
13. Mid-Year Population (Millions)	9.9	9.9	9.9	9.9	9.9	9.9	9.8	9.9	9.8	9.8	9.8
14. = Per Capita Consumption (kg)(1)	7.7	10.4	9.5	11.6	9.5	9.3	7.3	9.4	8.5	10.4	8.6

NOTES:
(1) Without Inventory Change

Source: Federation des Enterprises de Metaux Non Ferreux

BRAZIL

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	843.5	757.3	549.4	455.0	400.7	299.0	256.4	260.6	238.1	186.4	167.1
3. + Imports of Ingot	2.3	1.4r	2.6	4.6	3.0	10.8	28.3	46.7	51.8	60.4	82.8
4. + Imports of Mill Products	6.3	2.2r	3.8	5.0	2.8	3.9	8.7	22.3	27.3	14.8	29.3
5. + Recovery of Secondary	65.9	60.1	52.7	47.2	45.0	37.8	37.3	46.1	53.8	49.2	33.5
6. − Exports of Ingot	430.9	323.5	179.1	148.0	116.3	6.7	2.2	—	—	—	—
7. − Exports of Mill Products	26.0	33.5	36.0	57.3	53.3	11.7	18.6	11.5	8.6	3.9	2.8
8. = Apparent Aluminum Consumption	461.1	464.5r	393.4	306.5	281.9	333.1	309.9	364.2	362.4	306.9	309.9
11. + Inventory Change	37.4	36.0r	37.6	20.1	−7.9	21.2	20.8	10.9	24.2	6.4	17.6
12. = Aluminum Consumption	411.0	428.5	355.8	286.4	289.8	311.9	289.1	353.3	338.2	300.5	292.3
13. Mid-Year Population (Millions)	141.4	138.4	135.6	132.6	129.6	126.8	124.0	119.1	116.3	113.5	110.8
14. = Per Capita Consumption (kg)(1)	3.3	3.3	2.9	2.3	2.2	2.6	2.5	3.1	3.1	2.7	2.8
15. = Per Capita Consumption (kg)(2)	2.9	3.1	2.6	2.2	2.2	2.5	2.3	3.0	2.9	2.6	2.6

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
r—Revised

Source: Associacao Brasileira do Aluminio

Per Capita Aluminum Consumption—Continued

CAMEROON

Thousands of Metric Tons

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	71.5	81.1	81.6	73.1	77.4	78.9	65.4	43.0	44.6	41.3	46.2
3. + Imports of Ingot	—	—	—	—	—	—	—	—	0.8	0.1	—
4. + Imports of Mill Products	—	—	0.1	—	—	0.9	0.9	0.9	0.4	0.3	1.2
6. − Exports of Ingot	47.4	53.0	51.9	49.4	51.1	55.4	44.5	13.3	20.2	15.3	23.9
7. − Exports of Mill Products	5.8	6.8	8.9	6.7	9.8	10.7	7.0	5.1	10.0	10.1	5.4
8. = Apparent Aluminum Consumption	18.3	21.3	20.9	17.0	16.5	13.7	14.8	25.5	15.6	16.2	18.1
11. + Inventory Change	−0.5	0.3	0.2	−1.1	8.6	−0.5	1.5	1.8	−1.7	2.3	−0.9
12. = Aluminum Consumption	18.8	21.0	20.7	18.1	7.9	14.2	13.2	23.7	17.3	14.0	19.0
13. Mid-Year Population (Millions)	10.5	10.2	9.61	9.16	8.87	8.65	8.50	8.25	8.06	7.91	7.91
14. = Per Capita Consumption (kg)(1)	1.8	2.1	2.2	1.9	1.9	1.6	1.7	3.1	1.9	2.1	2.3
15. = Per Capita Consumption (kg)(2)	1.8	2.1	2.2	2.0	0.9	1.6	1.6	2.9	2.1	1.8	2.4

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

Source: Societe de Vante de l'Aluminium Pechiney

CANADA

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	1,547.0	1,355.0	1,282.0	1,223.0	1,094.0	1,070.0	1,118.1	1,074.0	863.3	1,050.5	976.4
3. + Imports of Ingot	53.0	65.0	60.0	39.0	31.0	24.0	14.3	9.9	24.0	11.5	20.8
4. + Imports of Mill Products	214.0	179.0	174.0	188.0	122.0	110.0	125.1	118.1	144.2	107.7	97.0
5. + Recovery of Secondary	80.0	78.0	74.0	70.0	56.0	50.0	65.0	65.1	84.5	74.8	48.3
6. − Exports of Ingot	1,172.0	1,164.0	1,051.0	834.0	925.0	896.0	725.5	784.7	550.5	862.6	655.3
7. − Exports of Mill Products	155.0	82.0	78.0	100.0	65.0	42.0	40.5	39.6	36.1	39.8	43.5
8. = Apparent Aluminum Consumption	567.0	431.0	461.0	586.0	313.0	316.0	556.6	442.8	529.3	342.2	443.6
11. + Inventory Change	+1.0	−57.0	−54.0	92.0	−48.0	−99.0	160.0	57.9	130.4	−38.2	111.3
12. = Aluminum Consumption	568.0	488.0	515.0	494.0	361.0	415.0	396.5	384.9	399.0	380.4	332.3
13. Mid-Year Population (Millions)	25.7	25.4r	25.2r	25.0r	24.8r	24.6r	24.2	23.9	23.7	23.5	23.3
14. = Per Capita Consumption (kg)(1)	22.1	17.0r	18.3r	23.4r	12.6r	12.8r	23.0	18.5	22.3	14.6	19.0
15. = Per Capita Consumption (kg)(2)	22.1	19.2r	20.4r	19.8r	14.6r	16.9r	16.4	16.1	16.8	16.2	14.3

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
r—Revised

Source: Aluminum Company of Canada, Ltd.

DENMARK

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
3. + Imports of Ingot	35.0	39.6	37.6	34.1	28.0	25.1	21.2	24.2	22.5	18.8	15.8
4. + Imports of Mill Products	61.3	56.4r	53.1r	55.0r	62.5	43.9	40.5	45.4	49.8	58.1	54.0
5. + Recovery of Secondary	—	na	na	na	28.0	32.3	30.3	24.9	31.1	27.7	20.5
6. − Exports of Ingot	37.8	30.8	28.8r	25.5	24.0	20.1	20.1	18.9	21.5	17.2	13.6
7. − Exports of Mill Products	14.8	16.4r	16.9r	17.0r	24.5	10.4	8.4	11.4	8.3	12.5	12.1
8. = Apparent Aluminum Consumption	43.7	48.8r	45.0r	46.6r	70.0	70.8	63.5	64.2	73.6	74.8	64.6
13. Mid-Year Population (Millions)	5.11	5.11	5.11	5.11	5.11	5.12	5.12	5.12	5.12	5.10	5.09
14. = Per Capita Consumption (kg)(1)	8.6	9.5r	8.8r	9.1r	13.7	13.8	12.4	12.5	14.4	14.7	12.7

NOTES:
(1) Without Inventory Change
r—Revised

Source: Danmarks Statistik

Detail may not add to totals due to rounding.

FINLAND

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
3. + Imports of Ingot	23.5	21.6	20.3	20.7	26.3	27.2	28.8	26.7	24.9	21.7	28.6
4. + Imports of Mill Products	28.8	25.0r	23.1r	24.5	24.0	22.4	21.9	28.8	26.8	20.3	29.6
5. + Recovery of Secondary	7.2	7.0r	6.9r	6.8	5.4	6.8	6.5	6.6	7.6	5.5	9.3
6. − Exports of Ingot	24.3	17.0	16.2	13.6	10.7	6.3	4.6	3.9	1.3	2.7	3.3
7. − Exports of Mill Products	9.3	7.5r	17.5	21.5	19.7	18.1	22.0	27.1	22.3	19.0	22.7
8. = Apparent Aluminum Consumption	25.9	29.1r	16.6r	16.9	25.3	32.0	30.6	31.1	35.7	25.8	41.5
13. Mid-Year Population (Millions)	4.93	4.92r	4.90	4.88	4.86	4.83	4.80	4.78	4.77	4.75	4.70
14. = Per Capita Consumption (kg)[1]	5.3	5.9r	3.4r	3.5	5.1r	6.6	6.4	6.5	7.5	5.4	8.8

NOTES:
(1) Without Inventory Change
r—Revised

Source: Central Statistical Office of Finland

FRANCE

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	322.5	321.8	293.2	341.5	360.9	390.4	435.6	431.9	395.1	391.4	398.8
3. + Imports of Ingot	407.1	428.1	396.1	365.0	394.6	352.0	300.4	332.4	315.3	291.1	275.3
4. + Imports of Mill Products	261.0	248.2	206.3	201.8	206.8	204.4	190.3	209.9	186.3	144.0	141.6
5. + Recovery of Secondary	232.0	215.3r	201.1r	205.7r	212.0r	197.9r	211.3r	205.1r	165.7	160.8	152.5
6. − Exports of Ingot	119.2	143.3	115.4	146.6	160.7	182.7	190.5	177.4	157.6	166.4	165.8
7. − Exports of Mill Products	326.5	278.1	275.5	280.8	294.6	263.0	248.5	230.0	259.9	214.6	188.2
8. = Apparent Aluminum Consumption	776.9	792.0r	705.8r	686.6r	718.9r	699.0r	698.6r	771.9r	645.0	606.2	614.2
11. + Inventory Change	−13.1	15.4	0.8	6.2	5.0	−18.1	22.0	3.8	−36.2	−6.1	−10.7
12. = Aluminum Consumption	790.0	776.5r	705.0r	680.4r	713.9r	717.1r	677.5r	768.1r	681.2	612.3	624.9
13. Mid-Year Population (Millions)	55.4	55.2	54.9	54.7	54.4	54.3	53.9	53.7	53.5	53.1	53.0
14. = Per Capita Consumption (kg)[1]	14.0	14.3r	12.9r	12.6r	23.2r	12.9r	13.0r	14.4r	12.1	11.4	11.6
15. = Per Capita Consumption (kg)[2]	14.3	14.1r	12.8r	12.5r	13.1r	13.2r	12.6r	14.3r	12.7	11.5	11.8

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
r—Revised

Source: Societe de Vante de l'Aluminium Pechiney

GERMANY, FEDERAL REPUBLIC OF

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	737.7	763.7	745.4	777.2	743.3	722.8	728.9	730.7	741.9	739.6	741.8
3. + Imports of Ingot	734.0	784.0	721.6	722.7	592.1	565.3	500.0	608.8	511.5	434.0	440.4
4. + Imports of Mill Products	379.9	327.7	322.7	304.7	299.0	262.3	240.1	284.1	262.3	205.5	213.8
5. + Recovery of Secondary	610.3	590.3	567.1	480.8	458.9	398.1	413.4	425.0	425.4	394.4	354.2
6. − Exports of Ingot	333.6	301.7	281.7	294.3	321.1	255.4	253.0	223.7	247.8	271.6	199.1
7. − Exports of Mill Products	589.2	563.4	560.7	558.3	512.9	449.7	406.9	387.9	395.5	348.2	301.9
8. = Apparent Aluminum Consumption	1,539.1	1,600.6	1,514.4	1,432.8	1,259.3	1,243.3	1,222.6	1,437.1	1,297.7	1,153.7	1,249.2
9. + Beginning Inventory	294.9	254.9	253.5	302.7	221.3	269.3	240.1	325.9	269.7	229.6	315.4
10. − Ending Inventory	230.5	294.9	254.9	253.5	302.7	221.3	269.3	240.1	325.9	269.7	229.6
11. = Inventory Change	64.4	40.0	1.4	49.2	−81.4	48.0	−29.2	85.8	−56.2	−40.1	85.7
12. = Aluminum Consumption	1,603.5	1,560.6	1,513.0	1,383.6	1,340.7	1,195.3	1,251.8	1,351.3	1,353.9	1,193.8	1,163.5
13. Mid-Year Population (Millions)	61.2	61.1	61.0	61.2	61.4	61.3	61.7	61.3	61.4	61.3	61.4
14. = Per Capita Consumption (kg)[1]	25.2	26.2	24.8	23.4	20.5	20.3	19.8	23.4	21.1	18.8	20.3
15. = Per Capita Consumption (kg)[2]	26.2	25.5	24.8	22.6	21.8	19.5	20.3	22.0	22.1	19.5	18.9

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
r—Revised

Source: Aluminium-Zentrale e.V. and German Metals Federation

Detail may not add to totals due to rounding.

Per Capita Aluminum Consumption—Continued

GREECE

Thousands of Metric Tons

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	na	126.3a	123.4a	136.0	136.2	134.9	146.1	145.6	140.8	145.6	131.4
3. + Imports of Ingot	na	7.2	3.6	6.5	2.1	4.0	2.8	0.1	0.3	0.3	4.5
4. + Imports of Mill Products	na	7.8	4.7	5.5	5.3	4.1	4.4	3.9	3.5	3.0	3.8
6. − Exports of Ingot	na	45.8	43.2	48.4	55.1	66.6	69.2	60.2	74.0	85.2	77.5
7. − Exports of Mill Products	na	39.4	49.8	48.5	40.6	29.5	26.9	32.7	30.0	26.5	24.2
8. = Apparent Aluminum Consumption	na	56.4e	38.7e	51.1	47.8	46.9	57.2	56.7	40.6	37.2	38.0
13. Mid-Year Population (Millions)	na	10.0	9.9	9.9	9.9	9.8	9.7	9.6	9.5	9.4	9.3
14. = Per Capita Consumption (kg)(1)	na	5.6e	3.9e	5.2	4.9	4.8	5.9	5.9	4.3	4.0	4.1

NOTES:
(1) Without Inventory Change
r—Revised
e—Estimated
a—Source: World Bureau of Metal Statistics
na—Not received at publication time

Source: National Statistical Service of Greece and Societe de Vante de l'Aluminium Pechiney

ICELAND

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	83.5	78.2	75.4	80.4	76.1	75.2	73.7	73.1	71.0	73.8	70.7
4. + Imports of Mill Products	2.6	2.0	1.9	2.1	3.0	2.5	2.9	2.3	1.8	2.9	1.9
7. − Exports of Mill Products	89.2	76.3	72.1	79.9	106.9	61.5	64.1	67.4	77.2	75.8	74.2
8. = Apparent Aluminum Consumption	3.1	3.9	5.2	2.6	−27.8	16.2	12.5	8.0	−4.4	0.8	−1.6
9. + Beginning Inventory	8.7	6.8	3.5	3.0	33.8	20.1	10.5	4.8	11.3	12.0	16.1
10. − Ending Inventory	3.0	8.7	6.8	3.5	3.0	33.8	20.1	10.5	4.8	11.3	12.0
11. = Inventory Change	5.7	1.9	3.3	0.5	−30.8	13.7	9.6	5.7	−6.5	−0.6	−4.1
12. = Aluminum Consumption	2.6	2.0	1.9	2.1	3.0	2.5	2.9	2.3	2.2	1.5	2.4
13. Mid-Year Population (Millions)	0.247	0.244	0.242	0.240	0.238	0.235	0.229	0.228	0.226	0.223	0.222
14. = Per Capita Consumption (kg)(1)	−12.6	16.0	21.5	10.8	−116.8	68.9	54.6	35.1	−19.3	3.7	−7.4
15. = Per Capita Consumption (kg)(2)	10.5	8.2	7.9	8.7	12.6	10.6	12.7	10.1	9.6	6.5	11.0

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

Source: Icelandic Aluminum Co. Ltd.

INDONESIA

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
3. + Imports of Ingot	na	na	na	na	na	na	na	na	15.2	12.2	11.7
4. + Imports of Mill Products	na	na	na	na	na	na	na	na	25.3	21.8	22.0
5. + Recovery of Secondary	na	na	na	na	na	na	na	na	—	*	*
7. − Exports of Mill Products	na	na	na	na	na	na	na	na	0.2	0.1	0.2
8. = Apparent Aluminum Consumption	na	na	na	na	na	na	na	na	40.3	33.9	33.5
13. Mid-Year Population (Millions)	na	na	na	na	na	na	na	na	138.0	135.3	132.6
14. = Per Capita Consumption (kg)(1)	na	na	na	na	na	na	na	na	0.3	0.3	0.3

NOTES:
(1) Without Inventory Change
na—Not received at publication time
**—Less than 50 metric tons*

Source: Department of Mines and Energy, Indonesia

Detail may not add to totals due to rounding.

IRAN

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	na	na	na	na	na	na	na	na	na	na	21.0
3. + Imports of Ingot	na	na	na	na	na	na	na	na	na	na	13.0
4. + Imports of Mill Products	na	na	na	na	na	na	na	na	na	na	17.0
5. + Recovery of Secondary	na	na	na	na	na	na	na	na	na	na	5.0
6. − Exports of Ingot	na	na	na	na	na	na	na	na	na	na	—
7. − Exports of Mill Products	na	na	na	na	na	na	na	na	na	na	—
8. = Apparent Aluminum Consumption	na	na	na	na	na	na	na	na	na	na	56.0
9. + Beginning Inventory	na	na	na	na	na	na	na	na	na	na	12.6
10. − Ending Inventory	na	na	na	na	na	na	na	na	na	na	3.0
11. = Inventory Change	na	na	na	na	na	na	na	na	na	na	−9.6
12. = Aluminum Consumption	na	na	na	na	na	na	na	na	na	na	65.6
13. Mid-Year Population (Millions)	na	na	na	na	na	na	na	na	na	na	33.5
14. = Per Capita Consumption (kg)(1)	na	na	na	na	na	na	na	na	na	na	1.7
15. = Per Capita Consumption (kg)(2)	na	na	na	na	na	na	na	na	na	na	2.0

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
na—Not received at publication time

Source: Industrial Development and Renovation Organization of Iran

IRISH REPUBLIC

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
3. + Imports (1)	50.2	49.0	42.3	42.4	36.2	30.8	28.6	31.2	29.8	25.5	20.7
6. − Exports (1)	31.5	31.3	26.2	24.2	23.0	16.9	14.5	16.3	13.0	9.6	9.4
8. = Apparent Aluminum Consumption	18.7	17.7	16.1	18.2	13.2	13.9	14.1	14.9	16.8	15.9	11.2
13. Mid-Year Population (Millions)	3.54	3.54	3.56	3.54	3.51	3.48	3.40	3.40	3.40	3.30	3.20
14. = Per Capita Consumption (kg)(2)	5.3	5.0	4.5	5.1	3.8	4.0	4.1	4.4	4.9	4.8	3.5

NOTES:
(1) Includes ingot and mill products
(2) Without Inventory Change
r—Revised

Source: Central Statistics Office, Dublin

ISRAEL

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
3. + Imports of Ingot	na	na	na	na	na	na	na	na	na	na	17.0
4. + Imports of Mill Products	na	na	na	na	na	na	na	na	na	na	11.0
5. + Recovery of Secondary	na	na	na	na	na	na	na	na	na	na	1.0
6. − Exports of Ingot	na	na	na	na	na	na	na	na	na	na	4.0
7. − Exports of Mill Products	na	na	na	na	na	na	na	na	na	na	9.5
8. = Apparent Aluminum Consumption	na	na	na	na	na	na	na	na	na	na	15.4
13. Mid-Year Population (Millions)	na	na	na	na	na	na	na	na	na	na	3.6
14. = Per Capita Consumption (kg)(1)	na	na	na	na	na	na	na	na	na	na	4.3

NOTES:
(1) Without Inventory Change
na—Not received at publication time

Source: The Israel Aluminium Association

Detail may not add to totals due to rounding.

Per Capita Aluminum Consumption—Continued

ITALY

Thousands of Metric Tons

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	232.6	242.6	224.1	230.2	195.7	232.9	273.8	271.2	269.1	270.8	260.1
3. + Imports of Ingot	376.9	347.7	319.9	291.8	254.5	211.2	208.8	294.8	236.6	190.5	195.5
4. + Imports of Mill Products	155.6	125.2	109.7	106.1	110.3	83.3	81.6	111.6	90.2	60.7	59.0
5. + Recovery of Secondary	355.0	301.0	282.0	283.0	333.0	283.0	287.0	298.0	258.0	238.0	237.0
6. − Exports of Ingot	54.6	34.3	43.8	32.2	41.3	54.1	49.8	11.8	22.4	69.3	24.2
7. − Exports of Mill Products	108.2	105.9	103.0	94.0	112.2	100.9	93.8	86.4	109.9	105.7	86.8
8. = Apparent Aluminum Consumption	937.3	876.3	788.9	784.9	740.0	655.4	707.6	877.4	721.6	585.0	640.5
11. + Inventory Change	−3.1	40.0	9.2	19.8	−13.1	−38.0	4.8	57.3	10.3	−38.0	32.4
12. = Aluminum Consumption	940.4	836.3	779.7	765.1	753.1	693.5	702.8	820.1	711.2	623.0	608.1
13. Mid-Year Population (Millions)	57.3	57.2	57.1	57.0	56.8	56.3	56.1	55.9	55.8	55.7	55.4
14. = Per Capita Consumption (kg)(1)	16.4	15.3	13.8	13.8	13.0	11.6	12.6	15.7	12.9	10.5	11.6
15. = Per Capita Consumption (kg)(2)	16.4	14.6	13.7	13.4	13.3	12.3	12.5	14.7	12.7	11.2	11.0

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

Source: Associazione Nazionale Industrie Metalli Non Ferrosi

JAPAN

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	52.8	148.4	231.3	291.1	258.6	355.1	776.8	1,095.7	1,014.2	1,061.8	1,192.9
2. ± Stockpile Adjustment	—	6.2	108.8	22.0	−63.5	−60.2	−22.0	—	22.0	−12.3	9.5
3. + Imports of Ingot	1,835.3	1,366.0	1,575.5	1,347.8	1,603.7	1,446.6	1,129.3	910.1	748.4	740.2	533.8
4. + Imports of Mill Products	52.5	33.1	32.6	39.0	33.6	27.6	30.0	44.9	32.1	26.9	21.7
5. + Secondary Recovery	962.9	838.7	803.4	692.8	700.0	560.5	550.1	563.0	476.1	494.4	391.7
6. − Exports of Ingot	1.9	2.0	2.2	2.3	1.7	6.7	12.2	7.6	8.0	54.6	99.6
7. − Exports of Mill Products	212.7	224.6	243.9	228.1	197.0	154.9	113.9	73.0	98.4	148.5	86.6
8. = Apparent Aluminum Consumption	2,688.9	2,165.8	2,505.5	2,162.3	2,333.7	2,167.9	2,338.1	2,533.1	2,186.5	2,107.8	1,963.3
9. + Beginning Inventory	118.5	142.5	125.4	128.9	185.4	308.0	210.8	105.5	171.3	258.2	122.1
10. − Ending Inventory	81.0	118.5	142.5	125.4	128.9	185.4	308.0	210.8	105.5	171.3	258.2
11. = Inventory Change	37.5	24.0	17.1	−3.5	−56.5	−122.6	97.2	105.3	−65.8	−86.9	136.1
12. = Aluminum Consumption	2,726.4	2,189.8	2,488.4	2,165.8	2,390.2	2,290.5	2,241.0	2,427.7	2,252.3	2,194.7	1,827.3
13. Mid-Year Population (Millions)	122.3	121.7	121.0	120.2	119.5	118.8	117.9	117.1	116.1	114.9	113.9
14. = Per Capita Consumption (kg)(1)	22.0	17.8	20.7	18.0	19.5	18.2	19.8	21.6	18.8	18.3	17.2
15. = Per Capita Consumption (kg)(2)	22.3	18.0	20.6	18.0	20.0	19.3	19.0	20.7	19.4	19.1	16.0

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

Source: Japan Aluminium Federation

KOREA, REPUBLIC OF

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	na	na	17.1	17.1	12.6	14.8	17.2	17.6	17.6	17.7	17.3
3. + Imports of Ingot	na	na	160.4	143.2	134.3	105.0	98.6	63.6	80.6	85.6	62.4
4. + Imports of Mill Products	na	na	30.9	34.6	31.7	24.0	17.0	20.0	22.6	20.4	15.8
5. + Recovery of Secondary	na	na	10.3	9.8	10.7	13.3	11.5	7.8	10.2	8.9	7.3
6. − Exports of Ingot	na	na	0.7	0.2	0.2	—	—	1.5	0.6	1.0	—
7. − Exports of Mill Products	na	na	33.5	21.3	20.9	24.0	25.7	35.0	9.0	13.0	15.0
8. = Apparent Aluminum Consumption	na	na	184.5	183.2	168.2	133.1	118.6	72.5	121.4	118.6	87.8
13. Mid-Year Population (Millions)	na	na	41.1	40.6	40.0	39.3	38.7	38.2	37.6	37.0	36.4
14. = Per Capita Consumption (kg)(1)	na	na	4.5	4.5	4.2	3.4	3.1	1.9	3.2	3.2	2.4

NOTES:
(1) Without Inventory Change
na—Not received at publication time
**—Less than 50 metric tons*

SOURCE: Ministry of Commerce and Industry

Detail may not add to totals due to rounding.

MEXICO

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	60.2	37.0	42.7	44.0	39.7	41.2	43.2	42.6	43.2	43.1	42.7
3. + Imports of Ingot	8.9	16.1	35.7	26.0	10.8	32.3	58.8	63.5	56.1	39.4	8.4
4. + Imports of Mill Products	46.2	39.7	68.7	34.5	12.9	62.2	82.9	49.4	36.4	29.2	16.3
5. + Recovery of Secondary	8.7	13.9	22.1	19.6	15.1	25.8	20.3	17.1	14.9	12.2	7.4
6. − Exports of Ingot	3.1	2.7	0.2	0.6	0.6	0.2	*	*	—	—	0.1
7. − Exports of Mill Products	18.2	9.4	16.9	7.5	1.7	1.1	3.1	3.4	3.1	3.7	2.4
8. = Apparent Aluminum Consumption	102.8	94.5r	152.1	116.0	76.4	160.2	202.1	169.3	147.4	120.2	72.4
9. + Beginning Inventory	6.7	8.2	6.0	7.5	13.4	4.5	2.0	1.5	1.8	2.5	4.4
10. − Ending Inventory	4.6	6.7	8.2	6.0	7.5	13.4	4.5	2.0	1.5	1.8	2.5
11. = Inventory Change	2.1	−1.5	2.2	−1.5	−5.9	8.9	2.5	0.5	−0.3	−0.7	−1.8
12. = Aluminum Consumption	104.9	96.1r	149.9	117.5	82.2	151.2	199.6	168.8	147.7	120.9	74.2
13. Mid-Year Population (Millions)	81.0	78.0	75.0	73.0	72.0	70.0	68.0	67.0	67.0	64.7	62.5
14. = Per Capita Consumption (kg)(1)	1.2	1.2	2.0	1.6	1.1	2.3	3.0	2.5	2.2	1.9	1.2
15. = Per Capita Consumption (kg)(2)	1.2	1.2	2.0	1.6	1.1	2.2	2.9	2.5	2.2	1.9	1.2

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

r—Revised
**—Less than 50 metric tons*
Source: Instituto Mexicano del Aluminio, A.C.

NETHERLANDS

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	268.7	265.8r	250.6	249.2	235.4	250.9	262.1	258.2	255.6	259.3	236.9
3. + Imports of Ingot	145.5	151.1	133.4	133.0	129.0	195.5	161.3	215.8	167.8	145.5	162.3
4. + Imports of Mill Products	149.7	134.5	126.0	120.5	272.6r	107.9r	92.4	113.3	106.5	83.0	91.7
5. + Recovery of Secondary	101.4	96.8r	83.3r	59.9	58.2	49.8	50.2	53.4	46.6	44.0	41.6
6. − Exports of Ingot	314.4	301.3	296.8	279.0	277.3	350.8	352.0	365.3	359.4	294.4	316.2
7. − Exports of Mill Products	134.1	104.9r	125.7r	107.3	262.8r	89.7r	86.5	98.7	88.3	67.7	76.7
8. = Apparent Aluminum Consumption	216.8	215.8r	197.0r	176.3	155.1r	163.6r	127.6	176.7	128.8	169.7	139.7
9. + Beginning Inventory	8.2	9.9	12.1	10.7	10.7	7.8	10.3	7.9	43.7	35.4	54.2
10. − Ending Inventory	10.7	8.2	9.9	6.8	11.5	9.6	8.7	10.3	7.7	60.0	35.3
11. = Inventory Change	+2.5	−1.7	−2.2	−3.9	0.8	1.8	−1.6	2.4	−36.0	24.6	−18.9
12. = Aluminum Consumption	214.3	217.5r	199.2r	180.2	154.3r	161.8r	129.2	174.3	164.8	145.2	158.6
13. Mid-Year Population (Millions)	14.5	14.5	14.5	14.4	14.4	14.3	14.2	14.1	14.0	13.9	13.9
14. = Per Capita Consumption (kg)(1)	15.0	14.9r	13.6r	12.2	10.8r	11.4r	9.0	12.5	9.2	12.2	10.1
15. = Per Capita Consumption (kg)(2)	14.8	15.0r	13.7r	12.5	10.7	11.3r	9.1	12.4	11.8	10.4	11.4

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
r—Revised

Source: Vereniging Nederlands Aluminium Instituut

NEW ZEALAND

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	249.0	236.2	241.6	241.6	220.1	163.1	154.3	154.5	154.1	149.9	143.6
3. + Imports of Ingot	5.4	0.1	0.5	1.4	6.6	7.2	3.4	—	—	—	—
4. + Imports of Mill Products	6.0	5.0	3.7	3.6	2.9	3.1	2.6	2.4	3.4	2.8	3.4
5. + Recovery of Secondary	4.0	4.0	4.0	3.7	3.0	2.7	3.0	2.0	2.0	1.8	1.8
6. − Exports of Ingot	219.0	209.1	224.6	212.8	210.4	140.2	124.8	126.2	118.6	134.1	121.9
7. − Exports of Mill Products	4.6	5.4	9.5	6.2	5.4	7.7	5.7	5.4	2.7	1.9	1.2
8. = Apparent Aluminum Consumption	40.8	30.8	15.7	31.3	16.8	28.2	32.8	27.4	38.2	18.5	25.7
9. + Beginning Inventory	12.6	15.2	32.5	31.8	41.6	35.6	31.9	−28.6	39.7	−45.5	46.1
10. − Ending Inventory	14.3	12.6	15.2	32.5	31.8	41.6	35.6	31.9	−28.6	39.7	−45.5
11. = Inventory Change	1.7	−2.6	−17.3	0.7	−9.8	6.0	3.7	3.3	11.1	−5.8	0.5
12. = Aluminum Consumption	39.1	33.4	33.0	30.6	26.6	22.2	29.1	24.1	27.1	24.3	25.1
13. Mid-Year Population (Millions)	3.28	3.28	3.27	3.23	3.19	3.16	3.13	3.10	3.15	3.13	3.13
14. = Per Capita Consumption (kg)(1)	12.4	9.4	4.8	9.7	5.3	8.9	10.5	8.8	12.1	5.9	8.2
15. = Per Capita Consumption (kg)(2)	11.9	10.2	10.1	9.5	8.3	7.0	9.3	7.8	8.6	7.8	8.0

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

Source: Comalco Limited and New England Department of Statistics

Detail may not add to totals due to rounding.

Per Capita Aluminum Consumption—Continued

NICARAGUA

Thousands of Metric Tons

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
3. + Imports of Ingot	na	na	na	na	na	na	na	na	na	0.5	1.2
4. + Imports of Mill Products	na	na	na	na	na	na	na	na	na	0.9	1.3
6. – Exports of Ingot	na	na	na	na	na	na	na	na	na	0.8	1.0
8. = Apparent Aluminum Consumption	na	na	na	na	na	na	na	na	na	0.6	1.5
13. Mid-Year Population (Millions)	na	na	na	na	na	na	na	na	na	2.4	2.3
14. = Per Capita Consumption (kg)[1]	na	na	na	na	na	na	na	na	na	0.3	0.6

NOTES:
(1) Without Inventory Change
na—Not received at publication time

Source: Ministerio de Economia Industria y Comercio, Managua

NORWAY

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	797.8	729.1	724.1	760.8	715.4	645.1	636.1	662.0	673.5	656.9	636.9
3. + Imports of Ingot	57.1	35.1	34.7	31.6	11.2	21.0	14.8	16.4	8.9	8.0	8.5
4. + Imports of Mill Products	33.1	51.9	46.0	51.8	42.4	37.2	38.5	42.5	29.9	34.4	40.4
5. + Recovery of Secondary	—	—	—	2.3	0.7	2.8	2.8	3.5	3.6	4.0	4.0
6. – Exports of Ingot	754.2	646.5	643.8	638.7	637.4	545.4	524.0	521.2	565.3	630.1	555.3
7. – Exports of Mill Products	102.7	89.3	91.7	91.8	105.1	76.8	74.9	71.6	72.7	61.1	47.4
8. = Apparent Aluminum Consumption	31.1	80.3	69.3	116.0	27.2	83.8	93.3	131.7	78.0	12.1	87.2
11. + Inventory Change	– 28.5	4.7	– 14.3	26.8	– 27.4	– 28.4	15.8	38.7	– 18.5	– 71.4	– 5.2
12. = Aluminum Consumption	59.6	75.6	83.6	89.2	54.6	112.2	77.5	93.0	96.5	83.5	92.4
13. Mid-Year Population (Millions)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.0	4.0	4.0
14. = Per Capita Consumption (kg)[1]	7.6	19.6	16.9	28.3	6.6	20.4	22.7	32.1	19.5	3.0	21.8
15. = Per Capita Consumption (kg)[2]	14.5	18.4	20.4	21.8	13.3	27.4	18.9	22.7	24.1	20.9	23.1

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

Source: Skan Aluminium

PANAMA

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
3. + Imports of Ingot	1.8	1.6	1.4	1.2	1.2	1.2	1.6	1.6	1.4	0.9	1.0
4. + Imports of Mill Products	2.2	0.4	0.4	3.6	1.6	0.1	0.2	0.1	0.3	0.3	0.3
5. + Secondary Recovery	1.3	0.7	0.7	0.6	0.6	0.6	0.5	0.4	0.4	0.3	0.5
6. – Exports of Ingot	0.9	0.5	0.4	0.3	0.2	—	—	—	—	—	—
7. – Exports of Mill Products	0.6	0.5	0.5	0.4	0.2	0.3	0.2	0.3	0.3	0.2	0.4
8. = Apparent Aluminum Consumption	3.9	1.8	1.8	4.7	3.0	1.6	2.0	1.8	1.7	1.3	1.5
13. Mid-Year Population (Millions)	2.3	2.3	2.20	2.14	2.10	2.00	1.98	1.95	1.90	1.90	1.80
14. = Per Capita Consumption (kg)[1]	1.7	0.8	0.8	2.2	1.4	0.8	1.0	0.9	0.9	0.7	0.8

NOTES:
(1) Without Inventory Change

Source: Aluminio de Panama, S.A.

Detail may not add to totals due to rounding.

PHILIPPINES, REPUBLIC OF

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
3. + Imports of Ingot	5.3	4.4r	2.5r	2.7r	8.5r	9.5r	10.4	17.6	28.4	16.8	17.0
4. + Imports of Mill Products	7.9	3.6r	4.7r	6.7r	9.4r	16.9r	4.4	5.5	7.9	4.3	3.6
6. − Exports of Ingot	—	—r	—	—	—	—r	*	*	—	—	—
7. − Exports of Mill Products	*	*r	*r	0.3r	2.9r	4.3r	4.7	5.6	2.9	3.4	0.8
8. = Apparent Aluminum Consumption	13.2	8.1r	7.2r	9.1r	15.0r	22.1r	10.1	17.5	33.4	17.6	19.8
13. Mid-Year Population (Millions)	57.4	56.0	54.7	53.4	52.1	50.8	49.5	48.3	47.1	45.9	44.7
14. = Per Capita Consumption (kg)[1]	0.2	0.1r	0.1r	0.2	0.3r	0.4r	0.2	0.4	0.7	0.4	0.4

NOTES:
(1) Without Inventory Change
**—Less than 50 metric tons*
na—Not received at publication time
r—Revised

Source: National Census and Statistics Office

PORTUGAL

	1987	1986e	1985	1984	1983	1982	1981	1980	1979	1978	1977
3. + Imports of Ingot	na	39.0	35.9	26.1	43.0	46.2	40.1	27.5	21.8	20.2	8.4
4. + Imports of Mill Products	na	16.3	13.4	13.2	15.3	17.9	18.2	16.6	14.9	16.6	26.4
5. + Recovery of Secondary	na	3.2	2.2	2.4	2.4	1.9	2.0	2.7	3.8	3.1	2.1
6. − Exports of Ingot	na	—	2.0	0.8	0.3	0.3	0.3	0.3	0.9	0.2	0.1
7. − Exports of Mill Products	na	12.4	11.2	9.3	14.9	16.1	10.6	8.6	6.0	1.5	6.3
8. = Apparent Aluminum Consumption	na	46.1	38.4	31.7	45.4	49.6	49.4	37.9	33.6	38.2	30.6
13. Mid-Year Population (Millions)	na	10.2	10.2	10.1	10.0	9.9	9.9	9.8	9.8	9.8	9.7
14. = Per Capita Consumption (kg)[1]	na	4.5	3.8	3.1	4.5	5.0	5.0	3.9	3.4	3.9	3.2

NOTES:
(1) Without Inventory Change
e—Estimated

Source: National Statistical Institute

EL SALVADOR

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
3. + Imports of Ingot	1.3	1.7	0.5	1.2	1.1	0.9	1.3	1.6	2.4	2.4	2.0
4. + Imports of Mill Products	0.7	—	—	0.3	1.9	—	0.8	0.4	1.2	2.0	0.6
5. + Recovery of Secondary	0.6	0.1	0.5	0.5	0.5	0.6	0.6	0.7	0.9	1.0	1.7
7. − Exports of Mill Products	1.0	0.9	0.8	1.1	1.0	0.4	1.3	1.9	2.4	3.3	2.6
8. = Apparent Aluminum Consumption	1.6	0.9	0.2	1.0	2.5	1.2	1.5	0.8	2.1	2.2	1.7
13. Mid-Year Population (Millions)	5.17	4.97	4.85	4.78	4.83	4.74	4.60	4.50	4.40	4.40	4.30
14. = Per Capita Consumption (kg)[1]	0.32	0.17	0.04	0.20	0.52	0.25	0.32	0.18	0.47	0.49	0.40

NOTES:
(1) Without Inventory Change

Source: Aluminio de Centro America, S.A.

Detail may not add to totals due to rounding.

Per Capita Aluminum Consumption—Continued

KINGDOM OF SAUDI ARABIA

Thousands of Metric Tons

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	na	—	—	—	—	•	•	—	—	—	—
3. + Imports of Ingot	na	9.1	9.5	8.7	14.6	5.2	80.3	73.4	53.3	46.4	36.8
4. + Imports of Mill Products	na	38.2	99.8	61.6	148.9	28.8	12.2	14.0	12.3	12.2	9.4
6. − Exports of Ingot	na	—	—	—	—	—	3.8	1.7	0.5	0.4	0.5
7. − Exports of Mill Products	na	—	—	—	—	0.5	•	0.2	0.5	0.2	0.5
8. = Apparent Aluminum Consumption	na	47.3	109.2	70.3	163.5	33.4	88.6	85.5	64.6	58.1	45.3
13. Mid-Year Population (Millions)	na	8.0	8.0	7.8	7.8	7.8	7.8	7.6	7.5	7.3	7.1
14. = Per Capita Consumption (kg)[1]	na	5.9	13.7	9.0	21.0	4.3	11.4	11.2	8.6	8.0	6.4

NOTES:
(1) Without Inventory Change
•—Less than 50 metric tons
na—Not available at publication time

Source: Saudi Basic Industries Corp.

SINGAPORE, REPUBLIC OF

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
3. + Imports of Ingot	41.0	16.0	14.0	11.0	18.0	11.0	8.0	9.0	6.0	8.0	4.0
4. + Imports of Mill Products	40.0	29.0	32.0	33.0	35.0	28.0	27.0	21.0	23.0	16.0	14.0
6. − Exports of Ingot	13.0	6.0	8.0	7.0	13.0	6.0	3.0	4.0	3.0	4.0	1.0
7. − Exports of Mill Products	9.0	9.0	8.0	7.0	14.0	7.0	4.0	4.0	4.0	4.0	1.0
8. = Apparent Aluminum Consumption	59.0	30.0	30.0	30.0	26.0	26.0	28.0	22.0	22.0	16.0	16.0
13. Mid-Year Population (Millions)	2.61	2.59	2.56	2.53	2.50	2.50	2.40	2.40	2.40	2.40	2.30
14. = Per Capita Consumption (kg)[1]	22.6	11.6	11.7	11.9	10.4	10.4	11.7	9.1	9.2	6.7	6.9

NOTES:
(1) Without Inventory Change

Source: Department of Statistics, Singapore

SOUTH AFRICA, REPUBLIC OF

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	na	169.6	164.6	167.4	161.3	105.8	83.7	86.0	85.1	79.5	77.4
3. + Imports of Ingot	na	0.4	0.4	0.2	0.4	0.7	1.8	0.3	0.6	0.6	0.4
4. + Imports of Mill Products	na	17.0	16.5	11.8	14.8	10.8	12.0	11.1	7.1	6.5	5.9
5. + Recovery of Secondary	na	27.0	25.0	28.2	31.7	27.2	28.3	27.2	16.5	10.2	9.6
6. − Exports of Ingot	na	92.4	90.5	82.7	110.5	24.6	2.9	12.9	33.1	38.5	29.1
7. − Exports of Mill Products	na	3.0	2.5	2.2	0.7	0.9	1.1	3.3	1.7	2.1	2.5
8. = Apparent Aluminum Consumption	na	118.6	113.5	122.7	97.0	119.0	121.8	108.4	74.5	56.2	61.6
11. + Inventory Change	na	2.2	−2.5	8.0	−11.6	12.3	3.7	0.4	0.8	−7.2	−1.0
12. = Aluminum Consumption	na	116.4	116.0	114.7	108.6	106.7	118.1	108.0	73.7	63.4	62.6
13. Mid-Year Population (Mil.) [3]	na	28.0	27.4	26.8	26.1	26.2	25.6	24.1	28.2	27.3	26.7
14. = Per Capita Consumption (kg)[1]	na	4.2	4.1	4.6	3.7	4.5	4.8	4.5	2.6	2.1	2.3
15. = Per Capita Consumption (kg)[2]	na	4.2	4.2	4.3	4.2	4.1	4.6	4.5	2.6	2.3	2.3

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
(3) 1980 – 1983 Population excludes independent homelands—Republics of Transkei, Bophutatswanda and Venda
1984 – pres. Population excludes independent homelands—Republics of Transkei, Bophutatswanda, Venda and Ciskei
na—Not available at publication time

Source: Aluminium Federation of South Africa

Detail may not add to totals due to rounding.

SPAIN

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	341.0	354.7	370.1	380.8	355.5	365.1	396.6	386.5	259.9	212.2	211.8
3. + Imports of Ingot	9.0	19.2	9.7	10.6	12.3	18.3	13.6	3.2	7.2	37.9	36.8
4. + Imports of Mill Products	47.2	40.0	20.6	26.0	41.6	31.0	21.3	24.0	20.3	15.9	25.3
6. − Exports of Ingot	99.3	142.2	202.7	232.2	165.9	145.2	162.7	106.8	42.9	5.8	9.0
7. − Exports of Mill Products	45.6	43.3	41.8	40.5	35.3	36.9	39.0	45.4	48.2	28.0	30.0
8. = Apparent Aluminum Consumption	252.3	228.4	155.9	144.7	208.2	232.3	229.9	261.5	196.3	232.2	235.0
11. + Inventory Change	4.0	8.3	−18.0	−25.0	4.0	23.5	33.5	21.0	−18.6	−24.0	2.7
12. = Aluminum Consumption	248.3	220.1	173.9	169.7	204.2	208.8	196.4	240.6	214.9	256.2	232.2
13. Mid-Year Population (Millions)	38.9	38.7	38.5	38.4	38.2	37.9	37.7	37.4	37.1	36.8	36.4
14. = Per Capita Consumption (kg)[1]	6.5	5.9	4.0	3.8	5.5	6.1	6.1	7.0	5.3	6.3	6.5
15. = Per Capita Consumption (kg)[2]	6.4	5.9	4.5	4.4	5.3	5.5	5.2	6.4	5.8	7.0	6.4

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

Source: Aluminio de Galicia, S.A.

SWEDEN

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	81.5	77.1	83.7	82.9	82.2	78.9	82.8	81.6	82.0	82.0	82.6
3. + Imports of Ingot	43.1	54.3	46.3	48.5	49.7	45.5	38.7	36.9	36.7	34.2	43.4
4. + Imports of Mill Products	91.0	87.5	82.0	87.4	86.3	74.0	63.0	64.4	65.4	55.1	59.3
5. + Recovery of Secondary	48.8	41.9	39.4	37.0	29.0r	27.2	26.7	24.5	24.0	25.0	24.5
6. − Exports of Ingot	43.6	39.4	41.8	38.2	39.2	35.2	37.8	17.7	19.6	38.5	32.5
7. − Exports of Mill Products	46.1	50.7	42.9	40.4	50.6	46.3	43.0	47.1	57.8	53.6	46.4
8. = Apparent Aluminum Consumption	174.7	170.7	166.7	178.3	157.5	144.1	130.4	142.6	130.7	104.2	130.9
11. + Inventory Change	+5.2	+1.1	−5.3	5.8	−2.0	−6.7	−0.7	12.9	−8.1	−18.5	1.2
12. = Aluminum Consumption	179.9	171.8	172.0	172.5	159.5	150.8	131.1	129.7	138.8	122.7	129.7
13. Mid-Year Population (Millions)	8.4	8.4	8.4	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
14. = Per Capita Consumption (kg)[1]	20.8	20.4	20.0	21.4	18.9	17.3	15.7	17.1	15.7	12.6	15.8
15. = Per Capita Consumption (kg)[2]	21.4	20.5r	20.6	20.7	19.1	18.1	15.8	15.6	16.7	14.8	15.6

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
r—Revised

Source: National Central Bureau of Statistics and Granges Aluminium

SWITZERLAND

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	73.4	80.6	72.6	79.2	76.0	75.3	82.5	86.3	83.0	79.6	79.8
3. + Imports of Ingot	87.0	86.7	77.2r	62.8	57.2	47.4	36.1	52.8	39.6	33.9	39.2
4. + Imports of Mill Products	64.5	65.2	62.2	56.1	52.7	47.1	47.9	51.6	42.6	36.1	31.3
5. + Recovery of Secondary	25.5	25.5	26.1	23.0	21.1	18.7	20.6	19.4	19.2	17.9	20.1
6. − Exports of Ingot	26.6	23.4	19.9	25.7	26.7	25.4	22.7	22.8	26.4	17.6	16.4
7. − Exports of Mill Products	99.6	99.3	95.1	84.3	80.4	70.5	66.0	72.0	76.6	67.2	70.4
8. = Apparent Aluminum Consumption	124.2	135.3	123.1	111.1	99.9	92.6	98.3	115.3	81.6	82.6	83.6
11. + Inventory Change	−0.2	2.7	0.1	−7.3	3.1	−4.2	−0.7	5.9	−6.7	−1.0	1.9
12. = Aluminum Consumption	124.0	132.6	123.0	118.4	96.8	96.8	99.1	109.4	88.3	83.6	81.7
13. Mid-Year Population (Millions)	6.6	6.5	6.5	6.5	6.5	6.5	6.4	6.4	6.2	6.2	6.3
14. = Per Capita Consumption (kg)[1]	18.9	20.7	18.9	17.1	15.4	14.3	15.4	18.0	13.2	13.3	13.3
15. = Per Capita Consumption (kg)[2]	18.9	20.3	18.9	18.2	15.0	15.0	15.5	17.1	14.2	13.5	13.0

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

Source: Vereinigung Schweizerischer Aluminium – Halbzeugwerke

Detail may not add to totals due to rounding.

Per Capita Aluminum Consumption—Continued

Thousands of Metric Tons

TAIWAN, REPUBLIC OF CHINA

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	na	na	—	—	—	10.0	30.0	62.5	56.2	50.4	29.8
3. + Imports of Ingot	na	na	147.2	99.9	139.1	88.6	47.7	58.3	52.9	47.6	52.5
4. + Imports of Mill Products	na	na	32.4	22.8	23.2	15.0	9.7	9.6	11.3	7.3	5.8
5. + Recovery of Secondary	na	na	3.6	5.3	24.2	15.5	16.8	19.2	13.8	9.5	8.7
6. − Exports of Ingot	na	na	5.8	3.1	2.6	0.6	—	*	*	0.4	0.1
7. − Exports of Mill Products	na	na	29.6	17.3	18.4	14.0	19.2	17.2	15.1	7.4	3.6
8. = Apparent Aluminum Consumption	na	na	147.8	107.6	165.5	114.5	85.0	132.5	119.1	107.0	93.1
11. + Inventory Change	na	na	na	na	na	0.9	−33.6	23.9	0.1	7.8	13.9
12. = Aluminum Consumption	na	na	na	na	na	113.6	118.6	108.6	119.0	99.2	79.2
13. Mid-Year Population (Millions)	na	na	19.0	18.8	18.6	18.3	18.0	17.8	17.5	17.0	16.7
14. = Per Capita Consumption (kg)(1)	na	na	7.8	5.7	8.9	6.3	4.7	7.4	6.8	6.3	5.6
15. = Per Capita Consumption (kg)(2)	na	na	na	na	na	6.2	6.6	6.1	6.8	5.8	4.7

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
**—Less than 50 metric tons*

Source: Taiwan Aluminium Corporation

TURKEY, REPUBLIC OF

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	95.2	144.4r	113.3	75.1	57.4	84.2	131.4	35.0	34.1	40.7	46.8
3. + Imports of Ingot	94.0	38.0	60.0	68.5	60.0	35.1	60.1	6.4	13.0	11.2	40.9
4. + Imports of Mill Products	15.0	6.0r	6.0r	3.1	5.7	8.6	10.8	21.6	7.0	1.7	3.0
6. − Exports of Ingot	—	—	—	0.2	1.3	1.0	—	—	—	—	—
7. − Exports of Mill Products	30.0	24.0	29.0	27.1	21.4	14.3	22.1	16.0	6.0	6.2	9.8
8. = Apparent Aluminum Consumption	174.2	164.4r	150.3r	119.4	100.4	112.6	180.2	47.0	48.1	47.4	80.9
13. Mid-Year Population (Millions)	49.3	49.3	49.3	48.3	47.3	46.3	45.3	44.4	43.5	42.6	41.8
14. = Per Capita Consumption (kg)(1)	3.3	3.3r	3.0r	2.5	2.1	2.4	4.0	1.1	1.1	1.1	1.9

NOTES:
(1) Without Inventory Change
r—Revised

Source: State Institute of Statistics

UNITED KINGDOM

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	294.4	275.9	275.4	287.9	252.5	240.8	339.2	374.5	359.4	346.2	348.9
3. + Imports of Ingot	175.1	180.6	145.8	170.2	162.4	154.8	123.3	169.4	182.1	185.2	197.4
4. + Imports of Mill Products	285.5	240.6	227.5	234.2	224.2	200.6	157.4	145.0	179.4	157.9	130.3
5. + Recovery of Secondary	110.8	110.1	121.9	137.1	122.6	108.4	140.7	150.0	159.9	174.2	182.3
6. − Exports of Ingot	125.9	110.3	121.1	118.2	126.5	117.5	168.5	188.9	200.0	155.5	142.7
7. − Exports of Mill Products	127.9	121.4	104.5	104.7	90.9	93.0	77.6	101.6	71.2	59.9	64.2
8. = Apparent Aluminum Consumption	612.0	575.5	545.0	606.5	544.3	494.1	514.6	548.3	609.6	648.0	651.9
9. + Beginning Inventory	95.1	105.2	119.4	118.7	106.4	85.1	97.4	96.1	46.2	72.6	90.9
10. − Ending Inventory	86.8	95.1	105.2	119.4	118.7	106.4	85.1	97.4	96.1	46.2	72.6
11. = Inventory Change	−8.3	−10.1	−14.2	0.7	12.3	21.3	−12.3	1.4	49.9	−26.4	−18.3
12. = Aluminum Consumption	620.3	585.6	559.2	605.8	532.0	472.8	526.9	546.9	559.7	674.4	670.2
13. Mid-Year Population (Millions)	56.8	56.7	56.6r	56.4	56.0	56.0	68.0	67.0	55.8	55.9	55.9
14. = Per Capita Consumption (kg)(1)	10.8	10.1	9.6r	10.8	9.7	8.8	7.6	8.2	10.9	11.6	11.7
15. = Per Capita Consumption (kg)(2)	10.9	10.3	9.9r	10.7	9.5	8.4	7.7	8.2	10.0	12.1	12.0

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

Source: Aluminium Fedderation, Ltd.

Detail may not add to totals due to rounding

UNITED STATES of AMERICA

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	3,346.9	3,038.7	3,499.7	4,099.1	3,353.3	3,273.7	4,488.7	4,653.6	4,556.9	4,358.0	4,117.5
3. + Imports of Ingot	1,245.5	1,348.8	868.7	882.0	742.7	616.3	644.7	526.8	517.8	687.5	608.1
4. + Imports of Mill Products	455.9	493.9	463.0	494.3	280.5	206.7	137.9	76.2	193.4	219.7	74.8
5. + Recovery of Secondary	1,847.0	1,773.0r	1,762.0	1,760.0	1,773.0	1,665.6	1,789.9	1,576.7	1,612.1	1,517.7	1,456.0
6. − Exports of Ingot	281.2	209.6	347.3	259.6	360.7	363.9	312.3	648.6	182.1	114.9	88.7
7. − Exports of Mill Products	287.0	203.5	199.3	228.6r	202.1	223.4	309.2	346.3	282.0	224.2	234.3
8. = Apparent Aluminum Consumption	6,327.1	6,241.3r	6,046.8	6,747.2r	5,586.7	5,175.0	6,439.7	5,838.4	6,416.1	6,443.8	5,933.4
9. + Beginning Inventory	2,235.3	2,342.8	2,653.5r	2,265.4	2,812.0	2,996.7	2,302.5	2,324.8	2,492.1	2,588.4	2,585.9
10. − Ending Inventory	1,893.8	2,235.3	2,342.8	2,653.5	2,265.4	2,812.0	2,996.7	2,302.5	2,324.8	2,492.1	2,588.4
11. = Inventory Change	−341.6	−107.5	−310.7r	388.1	−546.6	−184.7	694.2	−22.3	−167.3	−96.3	2.5
12. = Aluminum Consumption	6,668.7	6,348.8r	6,357.5r	6,359.1r	6,133.3	5,359.7	5,745.5	5,860.7	6,583.4	6,540.1	5,930.9
13. Mid-Year Population (Millions)	243.7	241.0	238.7	236.5	234.0	231.5	229.3	227.7	220.6	217.7	216.8
14. = Per Capita Consumption (kg)(1)	26.0	25.9r	25.3r	28.5	23.9	22.4	28.1	25.6	29.1	29.6	27.4
15. = Per Capita Consumption (kg)(2)	27.4	26.3r	26.6	26.9	26.2	23.2	25.1	25.7	29.8	30.0	27.4

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
r—Revised

Source: the Aluminum Association, Inc

VENEZUELA

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
1. + Primary Aluminum Production	na	421.0	404.0	387.0r	338.0r	273.6	313.5	321.3	210.3	67.1	43.4
3. + Imports of Ingot	na	6.0	3.0	0.4r	0.3r	0.9	0.4	0.2	9.1	—	7.9
4. + Imports of Mill Products	na	17.0	19.0	21.0	13.0	25.7	23.8	24.8	15.3	27.1	15.4
5. + Recovery of Secondary	na	24.0	21.0	14.0	20.0	10.0	10.0	10.0	10.2	10.0	1.3
6. − Exports of Ingot	na	247.0	297.0	179.0r	292.0r	208.5	239.0	217.3	123.4	28.1	10.4
7. − Exports of Mill Products	na	103.0	106.0	68.0r	22.0r	0.2	24.4	37.1	23.0	—	—
8. = Apparent Aluminum Consumption	na	118.0	44.0	179.0r	60.0r	101.5	84.3	101.9	98.4	76.1	57.5
9. + Beginning Inventory	na	62.0	97.0	22.0	68.0r	48.8	25.4	20.2	10.1	1.1	3.7
10. − Ending Inventory	na	61.0	60.0	99.0	22.0r	55.9	48.8	25.4	20.2	10.2	5.5
11. = Inventory Change	na	1.0	37.0	77.0	46.0r	7.1	23.4	5.2	10.2	9.1	1.8
12. = Aluminum Consumption	na	119.0	81.0	102.0r	116.0r	94.4	60.9	96.7	88.3	67.0	55.7
13. Mid-Year Population (Millions)	na	17.8	17.3	16.9r	16.5r	14.9	14.6	13.9	13.5	13.1	12.7
14. = Per Capita Consumption (kg)(1)	na	6.6	2.5	10.6r	3.6r	6.8	5.8	7.3	7.3	5.8	4.5
15. = Per Capita Consumption (kg)(2)	na	6.7	4.7	6.0r	6.4r	6.3	4.2	7.0	6.5	5.1	4.4

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
r—Revised
na—Not received at publication time

Source: Aluminio del Caroni, S.A.

ACSR AND ALUMINUM CABLE, BARE—Aluminum stranded conductor reinforced by a core of steel (ACSR), or aluminum (ACAR); or any other bare stranded aluminum conductor.

ATOMIZED POWDER—Powder produced by blowing or asperating molten metal through an orifice.

CASTING—A product made by pouring molten metal into a mold of a desired shape and letting it harden.

CONDUCTOR REDRAW ROD (CONTINUOUS-CAST OR ROLLED)—A solid round product that is long in relation to cross section, 0.375" or greater in diameter, produced by continuous casting followed by size-rolling, or by rolling from D.C. cast ingot, suitable for drawing into electrical conductor wire.

DIRECT MILL USES—Finished product applications supplied for the most part directly from mills rather than from distributors or jobber warehouses.

DRAWING STOCK (Redraw Rod)—See Conductor or Non Conductor Redraw Rod.

DRAWN TUBE—A hollow product that is long in relation to its cross section, which is round, square, rectangular, hexagonal, octagonal, or elliptical in shape, and brought to final dimensions by drawing.

DROSS AND SKIMMINGS—The mixture of oxides and other impurities which float to the surface of molten aluminum and is skimmed off.

EXTRUDED PIPE AND TUBE—A hollow product formed by extruding that is long in relation to its cross section, which is round, square, rectangular, hexagonal, octagonal, or elliptical in shape.

EXTRUDED ROD AND BAR—A solid product produced by extruding (sometimes brought to final dimensions by drawing) that is long in relation to cross section, which is round, square, rectangular, hexagonal, or octagonal in shape and 0.375" or greater in diameter or in at least one perpendicular distance between parallel faces.

The lightweight AX-5 aluminum hard spacesuit has joints permitting movement at the shoulder, elbow, hip, knee and ankle. Between the joints, rings of various sizes can be added, allowing the suit to fit people ranging from 4 feet 10 inches to 7 feet in height.

EXTRUSION INGOT (BILLET)—A solid or hollow cast form, usually cylindrical, suitable for extruding.

FLAKED POWDER—Powder consisting of flat or scale-like particles of a thickness small compared with other dimensions, produced by milling in the presence of a lubricant.

EXTRUDED SHAPES—A product produced by extruding, that is long in relation to its cross-sectional dimensions and has a cross section other than that of rod and bar and pipe and tube.

FOIL—A flat rolled product, rectangular in cross section, of thickness less than 0.006".

FORGINGS (EXCLUDING IMPACT EXTRUSIONS)—A product worked to a predetermined shape by one or more processes such as hammering, upsetting, pressing, rolling, etc.

GENERAL LINE DISTRIBUTOR—Warehouses and sells a number of mill products to a wide variety of customers.

IMPACTS (EXCLUDING COLLAPSIBLE TUBES AND CANS)—A product formed in a confining die from a metal slug, usually cold, by rapid single stroke application of force through a punch, causing the metal to flow around the punch and/or through an opening in the punch or die.

INTEGRATED PRODUCER (OR SUPPLIER)—For statistical reporting, a company which produces primary aluminum ingot in the United States and produces mill products from it.

METALLURGICAL/DESTRUCTIVE USES—Applications wherein, because of the way it is used, aluminum either loses its identity or is lost and cannot be recovered. Major uses include the deoxidizing of steel and reduction of ferroalloys; steel and other nonferrous metal alloys; steel coating; and such other applications as chemicals and catalysts.

MILL PRODUCTS—Metal that has been fashioned into an intermediate or semifabricated form in preparation for making a finished product. Example: sheet, a mill product, is used to make residential siding, a finished product.

NET SHIPMENTS—Excludes intra-industry shipments for further fabrication. It is the most accurate measure of industry output to markets because it eliminates duplication. Reported receipts of aluminum for further processing are subtracted.

NONCONDUCTOR REDRAW ROD (CONTINUOUS-CAST OR ROLLED)—A solid round product that is long in relation to cross section, 0.376" or greater in diameter, produced by continuous casting followed by size-rolling, or by rolling from D.C. cast ingot, suitable for drawing into nonconductor wire.

NONINTEGRATED FABRICATOR (OR SUPPLIER)—For statistical reporting, a U.S. mill product fabricator which is not affiliated with a domestic primary ingot producer.

OTHER INGOT AND MOLTEN METAL, PRIMARY—For statistical purposes, a cast form other than extrusion ingot (or molten metal), shipped by an integrated producer or nonintegrated fabricator from a company-owned facility not exclusively devoted to producing secondary ingot.

OTHER INGOT AND MOLTEN METAL, SECONDARY—For statistical purposes, a cast form other than extrusion ingot (or molten metal), principally produced from aluminum scrap to specification by secondary smelters (or others at a facility exclusively devoted to producing ingot from scrap for sale); excludes remelt scrap ingot (RSI) which is considered scrap until remelted and cast into specification ingot.

OTHER ROD AND BAR (CONTINUOUS-CAST OR ROLLED)—A solid, round, square, rectangular, hexagonal, or octagonal in shape produced by continuous casting or rolling, that is long in relation to cross section, 0.375" or greater in diameter or in at least one perpendicular distance between parallel faces; other than redraw rod and D.C. cast ingot.

PASTE—A blend of powder or flake with a thinner or plasticizer.

PLATE, NONHEAT-TREATABLE—A flat rolled product, rectangular in cross section, 0.250" or greater in thickness, which can be strengthened only by cold work.

PLATE, HEAT-TREATABLE—A flat rolled product, in 2000, 6000, or 7000 alloy series (except 7072), rectangular in cross section, 0.250" or greater in thickness, which can be strengthened by a suitable thermal treatment.

POWDER—An aggregate of discrete particles of aluminum, substantially all of which are finer than 1,000 microns (minus 18 mesh).

RECEIPTS—The metal physically received by a company for further processing.

REIMPORTS—Mill products that have been exported, partially processed outside the United States, and imported back to the United States while still in a mill product stage.

ROLLED STRUCTURAL SHAPES—A structural shape produced by hot rolling.

SCRAP—Includes "New" (prompt industrial) scrap, purchased, imported, or treated on toll, in all forms; and "Old" (post consumer or obsolete) scrap, including sweated pig; also remelt scrap ingot (RSI) which is considered scrap until remelted and cast into specification ingot.

SECONDARY SMELTER—A company whose facilities are exclusively devoted to producing ingot or molten aluminum from scrap.

SEMIFABRICATED PRODUCTS—See Mill Products.

SHEET, NONHEAT-TREATABLE—A rolled product, flat or coiled, rectangular in cross section, of 0.006" thickness but under 0.250" thickness, which can be strengthened only by cold work.

SHEET, HEAT-TREATABLE—A rolled product, in 2000, 6000, or 7000 alloy series (except 7072), flat or coiled, rectangular in cross section, of 0.006" thickness but under 0.250" thickness, which can be strengthened by a suitable thermal treatment.

STATISTICAL ADJUSTMENT—An adjustment made to product shipment data to account for net shipments of aluminum reported by the Bureau of the Census which are believed to be either over- or understated in the amounts indicated due to excessive or insufficient reporting. It also includes otherwise unpublished Census revisions. The addition of the statistical adjustment reconciles the amounts reported by the Bureau of the Census with the net shipments that the Aluminum Association feels are more correct.

WELDED TUBE—A hollow product that is long in relation to its cross section, which is round, square, rectangular, hexagonal, octagonal, or elliptical in shape, produced by forming and seam-welding sheet longitudinally.

WIRE, BARE, CONDUCTOR AND NONCONDUCTOR—A solid wrought product that is long in relation to its cross section, which is square, round, rectangular, hexagonal, or octagonal in shape, whose diameter or greatest perpendicular distance between parallel faces (except for flattened wire) is less than 0.375".

WIRE AND CABLE, INSULATED OR COVERED—Aluminum electrical conductor wire or stranded conductors that are insulated or covered.

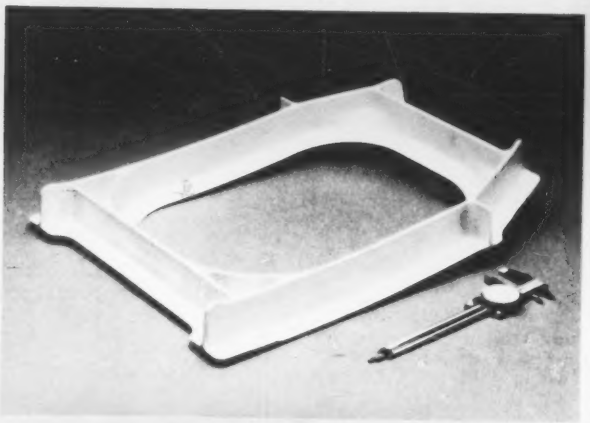
Publications

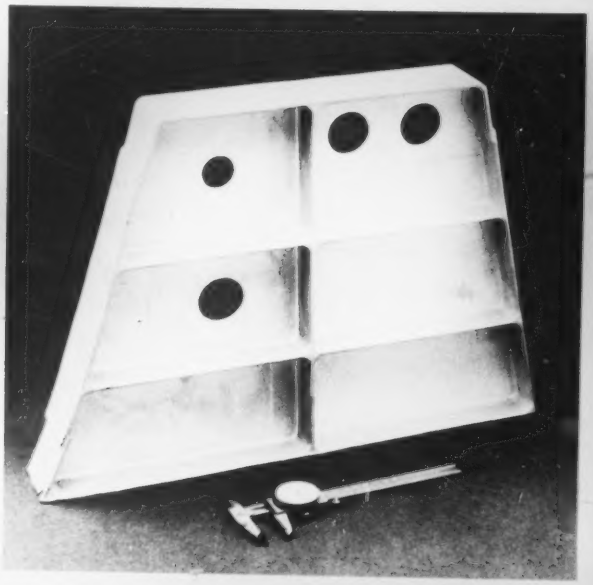
The following publications are available from the Aluminum Association, Inc.

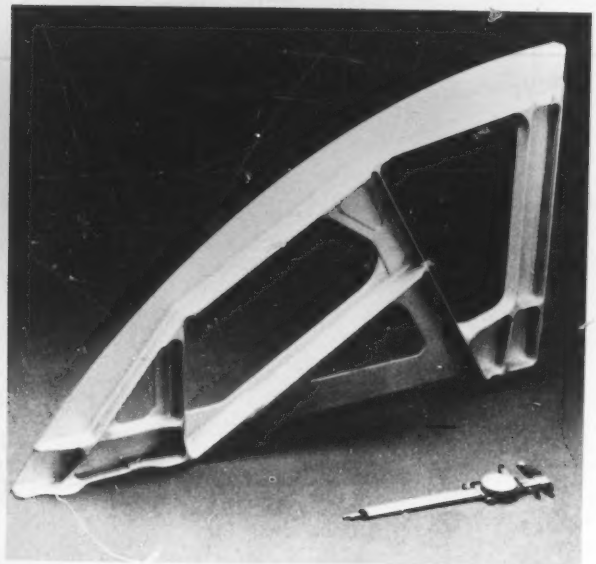
Aluminum Situation (monthly)
U.S. Exports and Imports of Aluminum (monthly and quarterly)
Aluminum Extrusion Press Directory
Aluminum Statistical Review Historical Supplement
U.S. Aluminum Industry Plant Directory
Publications Guide of the Aluminum Association
Film Guide of the Aluminum Association
About the Aluminum Association (a brochure)

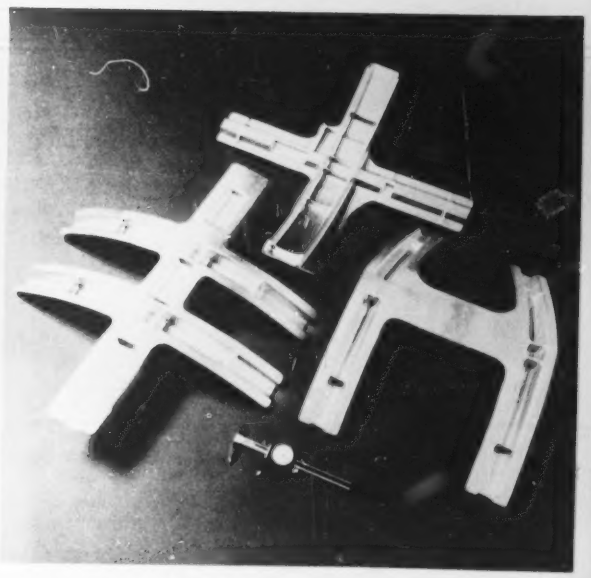
Write to the Publications Department, the Aluminum Association, Inc., 900 19th Street, N.W., Washington, D.C. 20006.

Aluminum precision forgings are playing an increasingly important role in the aerospace industry because they minimize—and in many cases eliminate—machining. The typical aerospace structures below illustrate the complex shapes that can be produced by this unique forging process.









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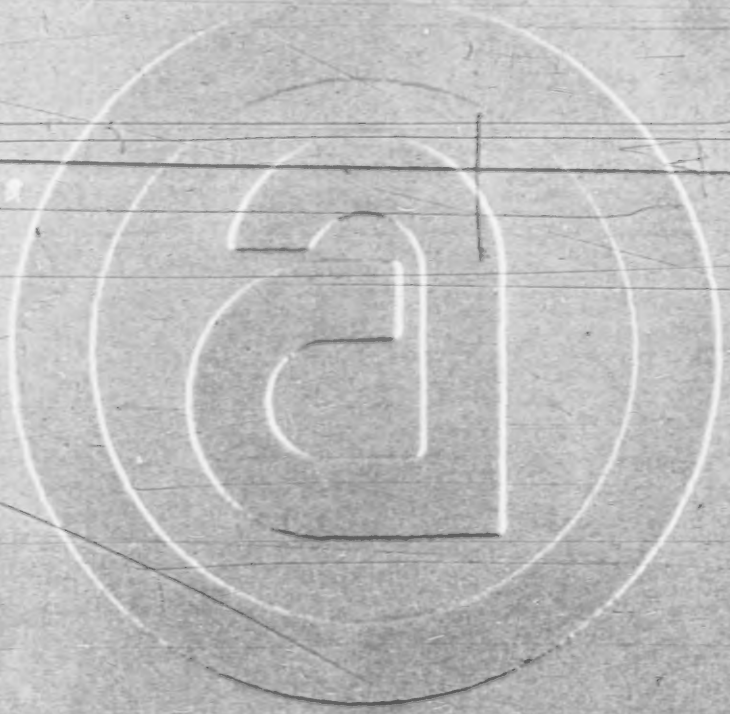
the Aluminum Association



Aluminum statistical review for 1988

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The Aluminum Association does not warrant the accuracy or completeness of any data in this Review. All data contained herein are subject to revision.

The Aluminum Statistical Review is an annual publication of the Aluminum Association, Inc.
900 19th Street, N.W.
Washington, D.C. 20006.
Department of Economics and Statistics 202-862-5100.

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Introduction to Aluminum Statistics

ABOUT THE REVIEW

The Aluminum Association's Statistical Review for 1988 assembles in one place the most important statistical data available on the aluminum industry. It includes information on every cycle of the aluminum production process from primary aluminum to markets for finished goods.

The Aluminum Association, Inc., representing the United States aluminum industry, is the primary source for statistics, standards and other information on aluminum and the industry.

The Review is divided into five major sections: shipments, markets, supply, U.S. foreign trade, and world statistics. Each section is preceded by an introduction and description summary of the tables that follow. In addition each graph or table has a description and highlights. The Review shows detailed shipment figures for 23 separate product categories. A glossary of industry terms is appended as well.

Capsule Review

Millions of Pounds	1988	1987
Total Supply	16,609	15,508r
Primary Production	8,696	7,378
Primary Capacity (Year-end)	8,602	8,546r
Shipments to Major Markets		
Building and Construction	2,905	3,177r
Transportation	3,456	3,307r
Consumer Durables	1,309	1,271r
Electrical	1,485	1,368r
Machinery & Equipment	973	883r
Containers & Packaging	4,489	4,524
Other (Incl. Stst. Adj.)	7	491r
Total Domestic Shipments	14,624	15,021
Exports	1,734	1,255
Total Shipments	16,358	16,276

r—Revised

Each 100 pounds of aluminum used can cut car weight by over 200 pounds and save 200 to 300 gallons of gas over the car's life time. Model holds a forged aluminum truck wheel and is surrounded by stamped aluminum auto wheels. 1988 aluminum shipments to the automotive and truck industry totaled over 2.2 billion pounds.

1988 Highlights

14,624 million pounds of aluminum were shipped to U.S. markets in 1988, down 2.6 percent from the 1987 level of 15,021 million pounds. Aluminum exports of ingot and semifabricated products, increased 38.2 percent in 1988 to 1,734 million pounds.

Total aluminum shipments, including exports, rose in 1988 to level of 16,358 million pounds, an increase of 0.5 percent from 1987 shipments of 16,276 million pounds.

Total aluminum imports into the U.S. (including scrap) decreased to 3,692 million pounds in 1988, an 11.5 percent drop over 1987 levels. Imports of aluminum ingot totaled 2,265 million pounds in 1988, a 17.5 percent decrease from the 1987 imports of 2,746 million pounds. Total imports of aluminum mill products in 1988 were 970 million pounds, a 3.5 percent drop from 1987 imports of 1,005 million pounds.

Consumer imports of mill products totaled 905 million pounds in 1988, were up 0.4 percent from 1987 and maintained a 5.5 percent penetration of U.S. mill product consumption.

"Net" shipments exclude intra-industry shipments for further fabrication. It is the most accurate measure of industry output to markets because it eliminates duplication. Reported receipts of aluminum for further processing are subtracted.

The **United States supply** of aluminum in 1988 rose 7.1 percent to a level of 16,609 million pounds. Domestic primary production increased 17.9 percent to 8,696 million pounds, imports of aluminum ingot and mill products were down 13.8 percent to 3,235 million pounds and domestic recovery from scrap accounted for 4,678 million pounds, a 6.8 percent increase from 1987.

Containers and Packaging continue to be the industry's largest market in 1988 with a volume of 4,489 million pounds and accounting for 27.4 percent of the total 1988 shipments. This market decreased 0.8 percent from 1987 shipments of 4,524 million pounds.

The second largest market for 1988 was the **Transportation** market totaling 3,456 million pounds and accounting for 21.1 percent of the total shipments, increased 4.5 percent over 1987. The **Building and Construction** market 1988 shipments of 2,905 million pounds decreased 8.6 percent from 1987 levels.

The **Electrical** market showed an increase of 8.6 percent over 1987 with 1988 shipments at 1,485 million pounds. **Consumer Durables** shipments rose 3.0 percent to 1,309 million pounds in 1988.

Shipments to the nonelectrical **Machinery and Equipment** market increased to 973 million pounds, a rise of 10.2 percent.

Acknowledgements

The data for this **REVIEW** were developed by the Statistical and Market Research Committee of the Aluminum Association, Inc. along with the cooperation of the following organizations: Can Manufacturers Institute; Bureau of the Census, U.S. Department of Commerce; and the Bureau of Mines, U.S. Department of the Interior.

The **Aluminum Statistical Review** for 1988 was compiled and edited by Nicholas A. Adams, Manager, Product and Market Statistics.

Statistical and Market Research Committee of the Aluminum Association, Inc.

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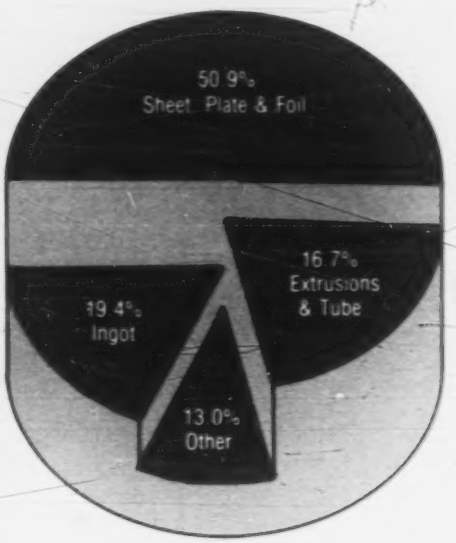
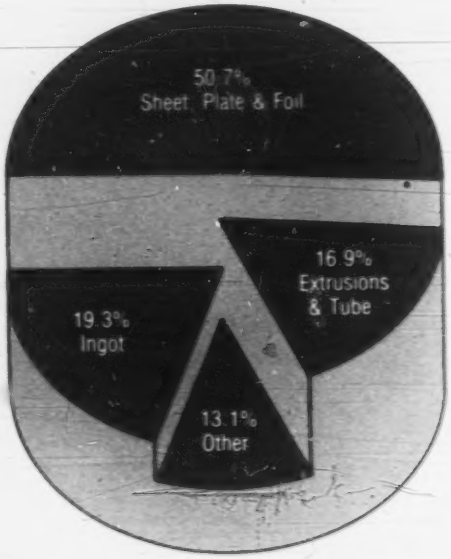
This edition covers in most tables the years 1978-1988. Data on the years 1960-1980 are available in a companion publication: "**Aluminum Statistical Review—Historical Supplement.**" Contact the Aluminum Association for further information.

U.S. Aluminum Industry Shipments

Percentage Distribution by Major Products: 1988



Percentage Distribution by Major Products: 1987



*Other

Conductor	4.0 (3.9)
Rod, Bar, Wire	1.8 (2.2)
Forgings & Impacts	1.0 (1.0)
Powder	0.6 (0.6)

NOTE: 1987 percentages are shown in parentheses

U.S. INDUSTRY SHIPMENTS UP 0.5 PERCENT

Total net shipments in 1988 amounted to 15,453 million pounds, 0.5 percent more than the 15,375 million pounds shipped in 1987.

The adjacent pie chart shows that the largest product category of sheet, plate and foil represented 50.9 percent of total shipments in 1988 (50.7% in 1987). Ingot for castings, destructive uses and exports accounted for 19.4 percent (19.3% in 1987) and extruded products and tube shipments were 16.7 percent (16.9% in 1987) of total shipments.

Excluding net imports, sheet and plate and foil volume of 8,333 million pounds were up 1.1 percent from 1987. Extruded products and tube shipments totaled 2,724 million pounds, down 1.1 percent from 1987.

Total shipments to U.S. consumers at 14,625 million pounds were down 2.6 percent from the 1987 level of 15,020 million pounds. Exports increased 38.1 percent to a 1988 level of 1,734 million pounds.

DESCRIPTION:

Total aluminum industry shipments presented on the next page are net shipments to U.S. consumers and for export. To avoid duplication, the figures do not include any intra-industry shipments for further fabrication into mill products. Imported ingot and mill products shipped to U.S. consumers are included.

Net shipments of ingot include domestic and import shipments and represent primary and secondary ingot shipments for export, for castings and destructive uses. Net shipments of mill products are shown separately for domestic and import. Mill product imports to aluminum producers are not included in total industry shipments. These imports are further processed by the producer into another mill product which is included in the total.

Imports to consumers are included in total industry shipments. These consumers fabricate the aluminum into a finished product. Imported mill products are net of receipts by producers of mill products. Imported mill products data include reimports of metal exported for processing and returned for further processing.

The pie charts illustrate the distribution of net shipments of aluminum ingot and mill product groups during 1988 and 1987. They include net shipments of ingot and domestic mill products but exclude imported mill products, because import data are not available in the same detail as domestic shipments of mill products. The distribution is based on data shown on pages 6 and 7. The imported mill products are shown on page 5.

For information on years prior to 1978 see the Aluminum Statistical Review—Historical Supplement.

Total Industry Shipments

Millions of Pounds

Net Shipments	1988 % Total	1988 Amount	1987 % Total	1987 Amount	1988-87 % Change	1978-88 % Annual Growth
Total	100.0	16,358.0	100.0	16,276.0	+0.5	+1.5
Ingot	19.4	3,180.7	19.3	3,141.0	+1.3	+0.1
Mill Products						
U.S. Producer	75.0	12,272.6	75.2	12,233.9	+0.3	+1.2
Consumer Imp	5.5	904.6	5.5	901.1	+0.4	+13.4
U.S. Exports	10.6	1,733.5	7.7	1,255.6	+38.1	+1.0
U.S. Consumers	89.4	14,624.5	92.3	15,020.4	-2.6	+1.5

Total Industry Shipments 1978-1988

Millions of Pounds

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
Net Shipments											
Total	16,358.0	16,276.0	15,339.9	15,272.3	15,521.3	14,153.2	12,505.1	13,814.4	14,351.0	14,867.3	14,425.3
Ingot	3,180.7	3,141.0	2,969.8	3,364.7	3,579.5	3,044.8	3,090.3	3,236.4	3,723.8	3,287.0	2,672.3
Mill Products											
U.S. Producer	12,272.6	12,233.9	11,416.4	11,091.5	11,075.9	10,577.5	9,026.8	10,337.8	10,484.9	11,230.4	11,346.0
Consumer Imp	904.6	901.1	953.7	816.1	865.9	530.8	388.0	240.2	142.3	349.9	407.0
U.S. Exports	1,733.5	1,255.6	910.8	1,204.2	1,076.4	1,240.9	1,294.7	1,370.0	2,193.3	1,022.9	747.4
U.S. Consumers[1]	14,624.5	15,020.4	14,429.2	14,068.1	14,444.9	12,912.3	11,210.4	12,444.4	12,157.7	13,844.4	13,677.9

Detail may not add to totals due to rounding

SOURCES: Current Industrial Report Series M33-2
Mill products: exports, imports: U.S. Department of Commerce, Bureau of The Census, Foreign Trade Division, and CIR Series M33-2

(1) Shipments to consumers in the U.S. are calculated by subtracting exports of ingot and mill products from total industry shipments. Includes no adjustment for inventories in the hands of consumers.

Mill Products Imports 1978-1988

Millions of Pounds

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
Total Imports[1]											
Total	969.9	1,005.1	1,088.9	1,020.7	1,089.7	618.3	455.6	303.9	168.1	426.3	484.5
Sheet & Plate	732.7	765.3	836.0	770.1	884.5	536.1	414.8	247.1	126.1	357.3	433.7
Rod & Bar	98.4	117.3	128.9	128.7	86.3	27.4	10.1	34.2	16.3	38.0	22.1
Other	138.8	122.5	123.9	121.9	118.9	54.9	30.7	22.6	25.7	31.0	28.7
Imports to Consumers[1]											
Total	904.6	901.1	953.7r	816.1	865.9	531.7	388.0	240.2	142.3	349.9	407.0
Sheet & Plate	727.3	732.6	798.4	680.3	746.6	477.4	357.7	205.6	115.7	317.0	371.0
Rod & Bar	44.8	54.8	51.3	24.1	5.8	9.3	1.2	12.3	9.1	2.2	9.7
Other	132.5	113.7	103.9r	111.7	113.5	45.1	29.2	22.3	17.5	30.7	26.3
Imports to Producers[2]											
Total	65.3	104.0	135.2r	204.6	223.8	86.7	67.6	63.7	25.8	76.4	77.5
Sheet & Plate	5.4	32.7	37.6	89.8	137.9	58.8	57.2	41.5	10.4	40.3	62.7
Rod & Bar	53.6	62.5	77.6	104.6	80.5	18.1	8.9	21.9	7.2	35.8	12.4
Other	6.3	8.8	20.0r	10.2	5.4	9.8	1.5	0.3	8.2	0.3	2.4

"Less than 50 thousand pounds.

Detail may not add to totals due to rounding.

(1) Includes reimports of metal exported for processing and returned for further processing (TSUSA 806.30)
(2) Product detail estimated by Aluminum Association from published ranges
(3) Annual growth rate calculated by straight line least squares method

SOURCES: U.S. Department of Commerce, Bureau of The Census, Foreign Trade Division and CIR Series M33-2

Net Shipments of Ingot and Mill Products
Excludes Mill Product Imports to Comsumers 1954-1988

Millions of Pounds

Year	Total aluminum	Total ingot	Primary Ingot	Secondary Ingot [3][4]	Extusion Ingot [3]	Total mill products	Sheet & Plate nonheat treatable	Sheet & Plate heat treatable	Foil	Forgings Impacts [2]	
1954	3,006.8	920.2	425.7	494.5	—	2,086.6	768.2	243.6	153.3		
1955	3,997.2	1,205.4	509.9	695.5	—	2,791.8	1,049.6	295.0	198.2	70.3	
1956	4,109.3	1,223.5	520.1	703.4	—	2,885.8	1,050.6	327.0	190.5	75.7	
1957	3,839.2	1,161.6	458.2	703.4	—	2,677.6	943.8	248.7	204.0	64.3	
1958	3,571.1	974.0	368.6	605.4	—	2,597.1	944.4	209.1	199.6	50.8	
1959	4,961.1	1,575.0	751.4	803.4	20.2	3,386.1	1,284.6	231.3	252.6	53.8	
1960	4,657.7	1,608.6	852.3	665.2	91.1	3,049.1	1,203.4	184.8	249.0	50.1	
1961	4,881.7	1,536.6	690.7	701.9	144.0	3,345.1	1,256.3	237.0	270.6	56.4	
							Sheet		Plate		
							NHT	HT	NHT	HT	
1962	5,669.8	1,858.6	768.9	848.7	241.0	3,811.3	1,361.6	157.3	108.9	82.9	297.4	79.4	
1963	6,289.7	2,032.6	859.2	885.9	287.5	4,257.2	1,626.5	165.2	126.5	77.1	322.3	84.0	
1964	7,063.5	2,228.6	946.5	995.1	287.0	4,834.9	1,903.0	167.8	124.2	79.0	356.7	88.4	
1965	8,016.7	2,337.3	1,069.3	1,126.9	141.1	5,679.4	2,179.8	223.0	109.0	97.0	395.7	96.4	
1966	8,797.6	2,340.1	987.2	1,190.4	162.6	6,457.5	2,382.4	281.5	125.7	147.2	432.2	139.2	
1967	8,836.9	2,486.4	1,063.6	1,189.1	233.7	6,350.6	2,385.6	227.4	119.5	135.6	449.4	165.2	
1968	9,861.8	2,694.8	1,154.2	1,284.3	256.3	7,167.0	2,910.8	250.2	103.5	140.0	508.7	105.7	62.1
1969	10,717.5	3,051.2	1,569.4	1,264.9	216.9	7,666.3	3,299.3	200.8	105.8	120.9	559.9	97.3	59.3
1970	9,952.5	2,594.5	1,307.0	1,126.0	161.5	7,358.0	3,376.4	126.7	94.1	91.4	558.7	71.4	49.0
1971	10,267.3	2,428.5	1,004.5	1,167.7	236.3	7,838.8	3,691.1	121.6	75.6	87.8	585.6	69.5	28.7
1972	11,880.0	2,633.8	1,000.7	1,467.9	165.2	9,246.2	4,431.4	160.6	78.8	97.1	673.2	95.3	27.5
1973	14,568.2	3,668.4	1,615.7	1,757.8	294.9	10,899.9	5,308.7	203.3	109.7	119.6	774.4	114.8	27.6
1974	13,639.5	3,178.4	1,503.5	1,457.4	217.4	10,461.1	5,087.9	216.5	157.2	164.6	748.2	112.8	25.5
1975	9,804.2	2,377.7	1,275.0	1,019.1	83.5	7,426.6	3,676.8	121.0	143.2	111.2	611.8	82.8	14.4
1976	12,245.6	2,540.1	1,108.5	1,227.6	203.9	9,705.6	5,167.0	191.9	108.4	106.5	772.3	83.1	17.1
1977	12,831.3	2,388.3	768.5	1,443.6	176.2	10,443.0	5,505.5	300.4	104.2	130.3	805.6	105.7	15.6
1978	14,018.4	2,672.3	923.3	1,658.7	90.3	11,346.0	5,785.4	350.0	116.1	157.1	876.6	115.7	20.7
1979	14,517.3	3,287.0	1,281.2	1,830.7	175.1	11,230.3	5,632.4	365.4	114.9	183.5	887.0	127.4	31.4
1980	14,208.7	3,723.8	1,958.3	1,582.1	183.5	10,484.9	5,301.8	247.2	32.2	220.9	830.4	107.2	26.0
1981	13,574.2	3,236.4	1,485.3	1,704.5	46.6	10,337.8	5,504.0	200.9	106.1	167.1	850.4	109.2	29.8
1982	12,117.2	3,090.3	1,508.0	1,517.3	65.1	9,026.8	4,976.9	150.1	70.9	131.2	731.2	78.9	25.3
1983	13,622.4	3,044.8	1,438.5	1,499.2	107.2	10,577.5	5,952.4	181.0	57.5	145.4	826.4	88.6	27.6
1984	14,655.4	3,579.5	1,782.6	1,768.2	28.7	11,075.9	5,866.5	221.2	81.5	173.4	852.7	114.9	29.3
1985	14,456.2	3,364.7		3,148.9	215.9	11,091.5	5,964.3	220.1	74.4	183.4	812.8	108.3	40.4
1986	14,386.2	2,969.8		2,667.9	301.9	11,416.4	6,135.5	246.1	72.7	175.1	860.5	97.3	47.2
1987	15,374.9	3,141.0		3,221.2	-80.2	12,233.9	6,862.5	247.7	74.1	194.3	866.3	108.3	48.0
1988	15,453.3	3,180.7		3,256.8	-76.2	12,272.6	6,789.4	296.0	89.5	208.6	949.5	118.6	47.3

(1) A small amount of rolled structural shapes is included with the rod & bar in 1954-1961 and with extruded shapes in subsequent years.
(2) Through 1954 forgings and impacts were not reported. They were included in appropriate forging stock product categories, mainly rolled rod & bar instead of forgings.
(3) 1954-1961 Secondary ingot included extrusion ingot.
(4) Secondary ingot includes shipments by integrated companies, secondary smelters and imports.

Detail may not add to totals due to rounding.

Millions of Pounds

Rod & bar	Extruded Shapes: Soft alloys	Extruded Shapes: Hard alloys	Tubing: Soft alloys	Tubing: Hard alloys	Wire bare: Non Conductor	Wire bare: Conductor	ACSR & bare cable	Ins. or cov. wire & cable	Powder and Paste
143.7	385.8	53.8	53.5	10.1	41.8	3.8	147.1	25.0	46.9
			Drawn tube	Welded tube					
109.9	636.6	45.8	67.2	25.5	57.7	4.0	156.9	39.5	35.7
117.8	641.0	63.5	60.2	27.6	54.4	5.5	187.4	56.1	28.4
					Wire, bare				
116.9	645.6	61.2	56.2	26.7	50.4		181.5	50.3	28.2
75.6	693.5	49.8	59.8	18.7	44.2		174.8	51.0	25.6
124.6	931.3	47.9	72.9	30.0	64.6		196.7	60.8	34.9
92.9	812.1	38.9	60.3	25.9	55.4		183.1	60.4	32.8
100.8	884.1	50.5	64.0	35.4	52.6		232.8	68.6	35.9

Extruded rod & bar: Soft	Extruded rod & bar: Hard	Extruded shapes: Soft	Extruded shapes: Hard	Extruded pipe & tube: Soft	Extruded pipe & tube: Hard					
136.4	54.8	12.6	782.4	44.8	139.5	5.2	78.4	40.7	55.0	253.2	76.9	43.7
121.0	61.1	10.2	870.7	54.2	150.3	6.1	65.5	52.1	57.6	272.3	89.2	44.8
							Drawn tube					
							Soft	Hard				
146.8	70.5	12.6	1,016.4	41.0	158.2	4.3	60.3	6.6	77.4	53.1	309.2	103.2	46.3
159.7	68.2	14.8	1,224.3	57.5	174.9	2.7	78.8	3.7	93.7	82.6	429.3	129.4	58.8
151.9	67.2	21.5	1,335.3	97.7	190.6	6.9	92.2	7.5	91.2	103.2	507.4	165.3	111.4
143.0	43.6	16.4	1,222.2	84.5	157.4	8.5	81.7	7.5	87.8	97.7	506.2	174.7	234.0
130.0	37.3	21.1	1,363.0	70.0	170.2	11.8	84.6	8.0	106.9	100.4	492.2	214.0	276.4
144.3	42.2	21.1	1,460.2	72.3	196.1		81.8	7.2	101.6	94.7	475.1	250.5	276.0
110.0	39.7	16.8	1,369.2	43.4	176.9		80.7	3.5	92.5	93.5	499.5	260.2	204.5
102.2	37.7	16.4	1,550.6	42.1	186.1		81.6	2.7	96.3	96.8	481.8	317.1	167.5
181.5	40.5	16.6	1,838.4	44.6	193.8		89.1	3.7	116.6	106.6	453.6	371.0	226.4
289.4	48.3	18.9	2,038.6	72.2	225.6		105.7	4.6	121.7	124.1	490.2	445.2	257.4
268.6	48.8	14.9	1,807.3	66.4	219.4		110.4		116.8	131.0	541.4	446.3	177.2
185.8	55.7	12.1	1,254.3	47.7	135.9		65.7		61.6	66.3	425.1	246.3	98.9
279.9(6)	69.9		1,661.8	28.9	188.8		98.0		91.2	79.9(6)	321.4	304.1	132.4
145.5(6)	82.5		1,845.5	65.4	183.8		104.3		114.5	85.3(6)	351.0	376.7	121.1(7)
266.5	113.7		2,021.9	93.2	176.8		106.7		110.4	89.3	390.3	419.6	135.9
300.0	100.9		1,990.1	104.2	151.9		95.9		83.5	91.3	417.4	427.5	125.6
377.6	113.0		1,791.2	107.3	140.7		80.7		96.8	72.2	399.8	363.2	116.6
272.0	102.9		1,732.9	69.9	127.3r		74.6		114.2	68.3	378.7	321.6r	107.7
190.4	74.5	19.4	1,568.1	48.2	89.5	11.4	60.9		47.9	50.8	345.2	276.0	80.0
187.1	89.2	25.4	1,859.5	55.2	122.2	14.3	65.2		56.4	54.9	357.4	333.3	78.7
201.2	91.8	31.0	2,138.8	88.0	154.1	22.6	56.4		59.9	54.3	346.0	393.8	98.7

Drawing Stock	Rod & bar rolled or extruded: Soft	Rod & bar rolled or extruded: Hard			Pipe & tube extruded or drawn: Soft	Pipe & tube extruded or drawn: Hard					
27.2	81.3	110.0	2,285.7	67.5	238.6	10.6	(8)	86.2	277.0	396.2	107.3
8.9	99.2	115.7	2,457.7	72.0	269.3		(8)	104.8	233.8	396.1	96.2
24.6	109.2	113.5	2,411.9	70.2	272.8		(8)	110.7	219.9	407.7	92.1
33.0	104.6	117.9	2,340.3	82.8	283.4	17.7	(8)	111.5	276.4	381.7	90.3

(5) Extrusion ingot includes primary and secondary metal shipments by integrated companies, non-integrated companies, secondary smelters and imports includes exports and overstated domestic shipments due to insufficient reporting of receipts.

(6) Bare wire estimated by the Aluminum Association from part year reporting.

(7) Powder, n.e.c., included for only nine months of 1976 and excluded entirely for 1977.

(8) Welded tube included with aluminum sheet.

SOURCE: U.S. Department of Commerce, Bureau of The Census, Industry and Trade Administration, Bureau of Domestic Business Development, Office of Basic Industries—Current Industrial Reports since 1960: Facts for Industry 1959 and earlier.

General Line Distributor Shipments

DISTRIBUTOR SHARE 33.6 PERCENT

During 1988 distributors captured 33.6 percent of their available market. Total U.S. shipments of mill products, excluding direct mill uses, was 4,897 million pounds, down 2.8 percent from 1987. Distributor shipments at an estimated 1,643 million pounds were up 2.8 percent from a year ago.

DESCRIPTION:

The table shows general line distributor shipments for the years 1978-1988. Also shown are estimates of the total market in which general line distributors are participants. This is labeled Total U.S. Shipments, excluding Direct Mill Uses.

For information on years prior to 1978, see the Aluminum Statistical Review—Historical Supplement.

Direct mill uses are excluded because these end product manufacturers do not buy from distributors. In some cases producers make the final products. These uses include residential siding, extruded shapes for all building products, furniture tube, conduit, irrigation pipe, can stock and exports. Total U.S. shipments excluding direct mill uses thus differ from total aluminum industry shipments of mill products by the amount of direct mill uses and products not generally handled by general line distributors (foil, conductor, forgings, powder).

General Line Distributor Shipments 1978-1988

Millions of pounds

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
Distributor Shipments											
Total	1,643	1,597	1,465	1,389	1,411	1,285	948	1,200	1,274	1,359	1,319
Sheet	1,083	1,068	959	907	941	864	601	783	751	820	819
Plate	178	160	155	152	146	119	104	120	155	152	138
Rod, bar & wire	154	157	152	138	134	131	106	140	161	176	161
Extruded shapes	159	151	144	138	132	121	94	107	151	149	138
Pipe & tube	69	61	55	54	58	50	43	50	56	62	63
Total U.S. Shipments excluding Direct Mill Uses											
Total	4,897	5,039	4,615	4,377	4,556	4,077	3,160	3,816	3,819	4,696	5,093
Sheet	3,016	3,121	2,812	2,674	2,839	2,738	2,018	2,470	2,328	2,970	3,377
Plate	285	270	270	273	256	190	189	240	266	281	253
Rod, bar & wire	328	391	366	318	384	331	275	331	379	407	398
Extruded shapes	1,025	1,038	948	914	890	675	562	632	699	859	864
Pipe & tube	243	219	219	198	187	145	116	143	147	177	201
Distributor share (per cent)											
Total	33.6	31.7	31.7	31.7	31.0	31.5	30.0	31.4	33.4	28.9	25.9
Sheet	35.9	34.2	34.1	33.9	33.1	31.6	29.8	31.7	32.3	27.6	24.3
Plate	62.5	59.3	57.4	55.7	57.0	62.6	55.0	50.0	58.3	54.1	54.5
Rod, bar & wire	47.0	40.2	41.5	43.4	34.9	39.8	38.5	42.3	42.5	43.0	40.5
Extruded shapes	15.5	14.5	15.2	15.1	14.8	17.9	16.7	16.9	21.6	17.3	16.0
Pipe & tube	28.4	27.9	25.1	27.3	31.0	34.5	37.1	35.0	38.1	35.0	31.3

NOTE: In this table rod, bar and wire includes extruded rod and bar; pipe and tube includes extruded, drawn and welded pipe and tube.
SOURCE: Estimated by the Statistical and Market Research Committee of the Aluminum Association.

Shipments of Castings

SHIPMENTS UP 8.9 PERCENT

There were 2,430 million pounds shipped during 1988 versus the prior year's 2,232 million pounds, an increase of 8.9 percent from the previous year.

This table shows shipments of aluminum castings separately for sand, permanent mold and die castings, both for sale and own use through the year 1983. Permanent mold shipments for sale and own use were combined in 1984. Own use shipments are for captive consumption in the producers' end products.

Ingot requirements for the castings shipments shown in this table are part of the net ingot shipments shown on page 5 & 6.

Shipments of Castings
1963-1988

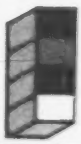
Millions of Pounds

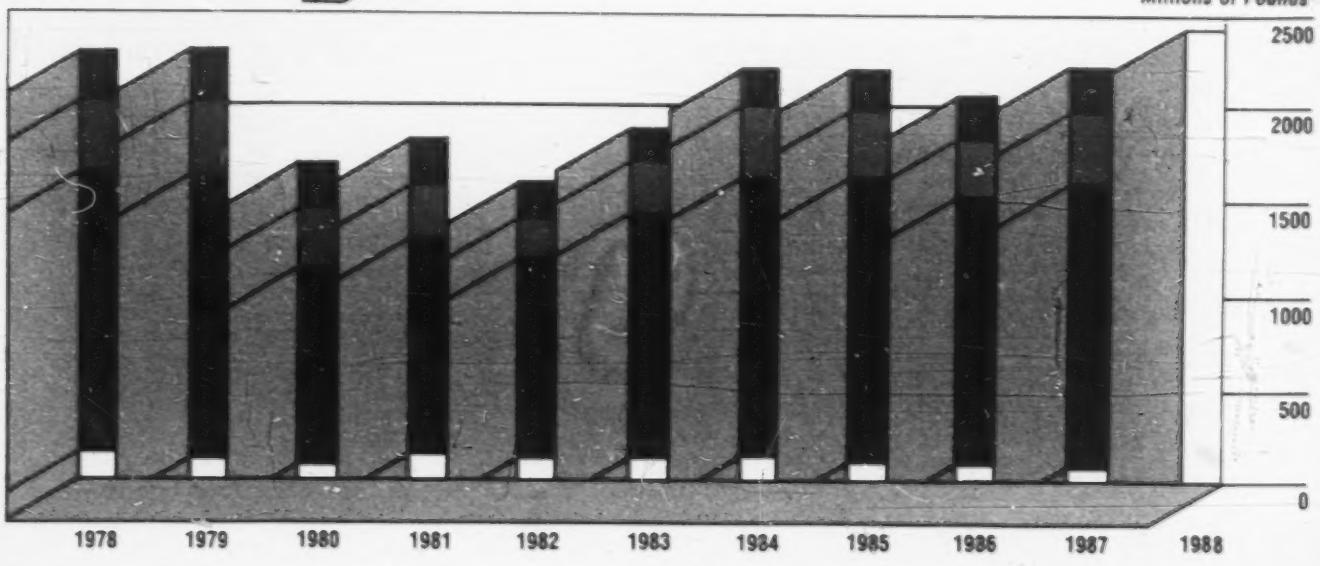
Year*	Total Castings[1]	Sand Castings		Permanent and Semi-permanent Mold Castings		Die Castings	
		for sale	own use	for sale	own use	for sale	own use
1963	1,209.3	160.1	42.1	169.6	159.3	281.2	390.4
1964	1,257.2	168.9	60.6	179.3	137.4	312.6	386.3
1965	1,416.7	193.6	72.7	185.2	134.8	391.3	431.7
1966	1,654.1	220.6	68.0	233.3	156.1	478.7	477.8
1967	1,488.7	155.3	74.1	203.6	126.8	472.2	434.7
1968	1,615.2	148.9	58.7	201.5	158.7	510.5	518.3
1969	1,731.0	155.8	59.5	245.5	160.0	510.9	573.7
1970	1,541.9	127.0	65.5	188.7	132.3	472.3	530.7
1971	1,616.8	122.7	62.4	200.2	118.3	500.5	595.4
1972	1,915.6	158.8	62.4	236.6	143.8	595.8	685.8
1973	2,113.2	184.1	65.9	247.6	147.8	680.0	735.4
1974	1,855.4	200.4	58.1	220.1	114.6	617.3	585.5
1975	1,455.2	146.5	42.9	159.7	90.7	461.4	496.1
1976	1,971.1	170.3	41.3	203.4	121.8	606.5	721.7
1977	2,153.4	186.6	33.3	228.0	145.2	682.6	763.0
1978	2,286.8	210.9	34.9	238.5	148.6	799.8	718.1
1979	2,302.8	245.5	33.2	265.4	142.2	853.1	663.6
1980	1,989.8	200.0	33.1	217.2	105.9	633.8	429.2
1981	1,819.8	207.3	30.8	209.2	82.3	704.1	452.7
1982	1,605.3	159.0	19.2	161.9	77.2	624.2	434.0
1983	1,898.1	156.3	10.2	211.8	90.5	812.9	493.3
1984	2,232.8	183.3	12.6	388.7		932.9	583.0
1985	2,229.8	188.7	15.3	390.7		923.5	596.8
1986	2,186.7	180.2	25.6	391.0		893.8	592.8
1987	2,232.1r	223.0	25.6	398.6		894.7	614.8
1988	2,430.1	na	na	na		na	na

(1) Total includes small amounts of "other" castings not shown seperately
r-Revised
SOURCE: U.S. Department of Commerce, Bureau of the Census, Industry Division
*Prior to 1963 consult the Aluminum Statistical Review—Historical Supplement

p—Preliminary
na—not available at publication

Shipments of Castings
1978-1988





Market Shipment Highlights—1988

SHIPMENTS UP 0.5 PERCENT

Total industry shipments of aluminum in 1988 increased to level of 16,358 million pounds, up 0.5 percent from the volume of 16,276 million pounds in 1987. Total domestic shipments decreased 2.6 percent and exports rose 38.2 percent.

The largest increase occurred in the area of **Machinery & Equipment,** up 10.2 percent from 1987.

Containers and Packaging continue as the industry's largest market in 1988 with a volume of 4,489 million pounds, or 27.4 percent of total shipments. Shipments for metal cans declined for the first time, dropping 0.9 percent to a total of 3,698 million pounds. Semirigid food containers household and institutional foil, caps & closures, collapsible tubes and many flexible packaging uses are other important components in this market.

Building and Construction, at 2,905 million pounds, decreased 8.6 percent from a 1987 volume of 3,177 million pounds. Included in this market are residential, industrial, commercial, farm and highway applications as well as mobile homes.

Shipments to the **Transportation** market increased to a volume of 3,456 million pounds, 4.5 percent more than in 1987. Included in this market are passenger cars, trucks and buses, trailers and semitrailers and recreational vehicles.

Electrical market applications showed an 8.6 percent rise to 1,485 million pound volume in 1988. Wire and cable products rose 5.1 percent.

Shipments to the **Consumer Durable** goods market experienced a 3.0 percent increase to a volume of 1,309 million pounds. Uses such as appliances, and air conditioning, showed increases.

Shipments to the nonelectrical **Machinery and Equipment** market of 973 million pounds increased 10.2% over 1987 levels and accounted for 5.9 percent of the total. Uses include agricultural, construction and industrial machinery, irrigation pipe, ladders, fasteners and other general industrial equipment.

Exports of aluminum jumped to near record levels in 1988, increasing 38.2 percent to 1,734 million pounds or 10.6 percent of total shipments.

The **average annual growth rate*** for aluminum shipments in the 1978-1988 period was 1.5 percent.

DESCRIPTION:

The Statistical and Market Research Committee of the Aluminum Association, Inc. has developed an annual breakdown of total aluminum industry shipments by major market since 1960. End use data on U.S. aluminum shipments are not available from government sources on a regular basis. Aluminum consumption figures for some industries are published by the U.S. Department of Commerce in the Census of Manufacturers. The most recent such Census covers the year 1987.

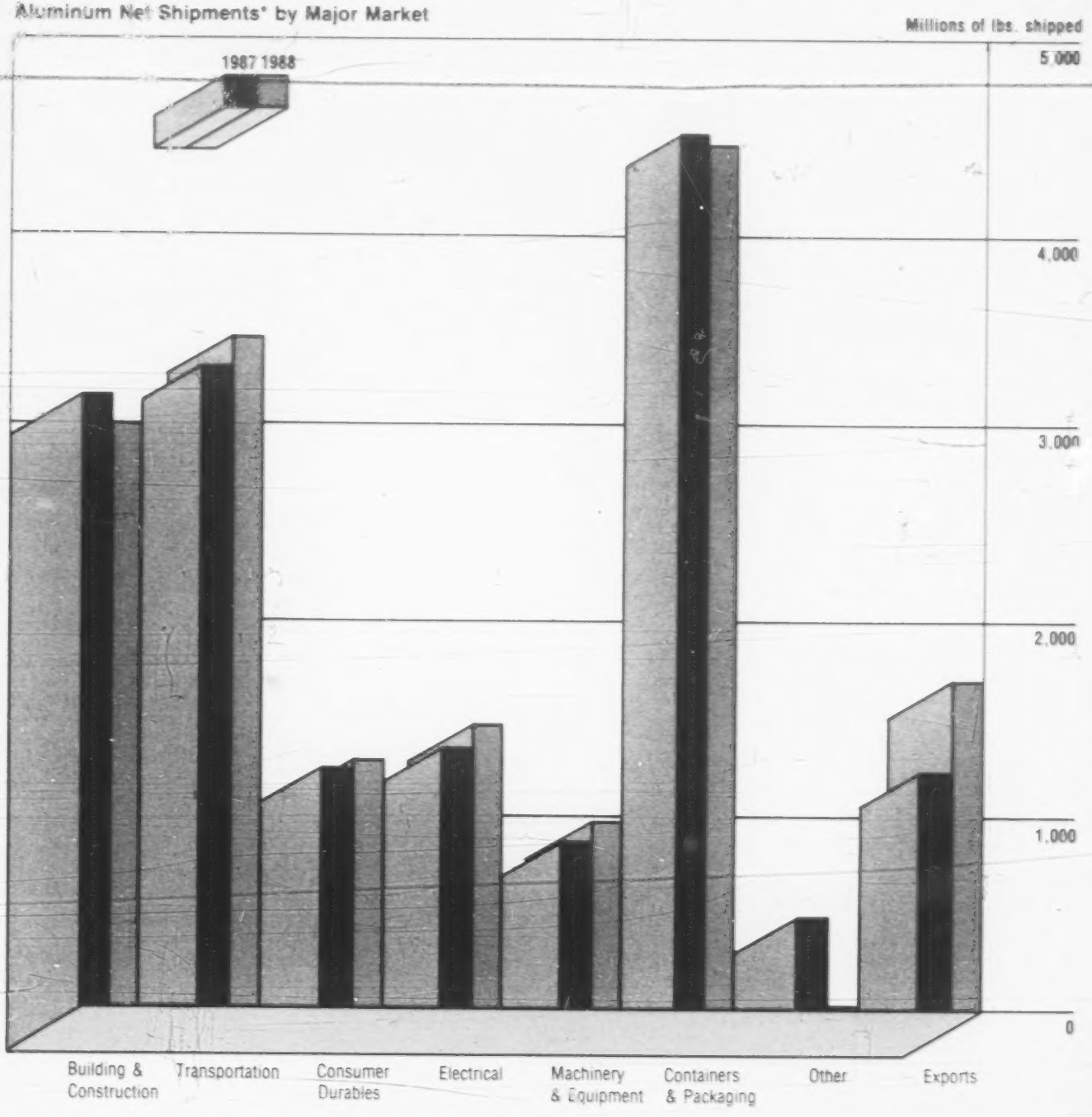
In the United States the aluminum industry has identified its major markets as building and construction, transportation, consumer durables, electrical, machinery and equipment, containers and packaging, exports and other end uses. Each of these major markets has a wide range of end uses within it.

Tables on pages 13-17 show considerable detail on the major markets for 1978-1988. Page 20 also depicts trends for 1978-1988 in selected important aluminum uses.

For information on years prior to 1978 see the Aluminum Statistical Review—Historical Supplement.

(*) Annual growth rate calculated by straight line least squares method

Aluminum Net Shipments* by Major Market



Shipments by Major Market

Major Market	1988 % Distribution	1988 Amount	1987 % Distribution	1987 Amount	1988-1987 % Change	1978-1988 % Annual Growth
Building & construction	17.8	2,905	19.5	3,177r	−8.6	+0.6
Transportation	21.1	3,456	20.3	3,307r	+4.5	+2.4
Consumer durables	8.0	1,309	7.8	1,271r	+3.0	+2.3
Electrical	9.1	1,485	8.4	1,368r	+8.6	−0.3
Machinery & equipment	5.9	973	5.4	883r	+10.2	−0.8
Containers & packaging	27.4	4,489	27.8	4,524	−0.8	+3.9
Other (inc. statistical adjustment)**	—	7	3.0	491r	−98.6	−6.3
Domestic, total	89.4	14,624	92.3	15,021	−2.6	+1.5
Exports	10.6	1,734	7.7	1,255	38.2	+1.0
INDUSTRY TOTAL	100.0	16,358	100.0	16,276	0.5	+1.5

N.A. Not applicable

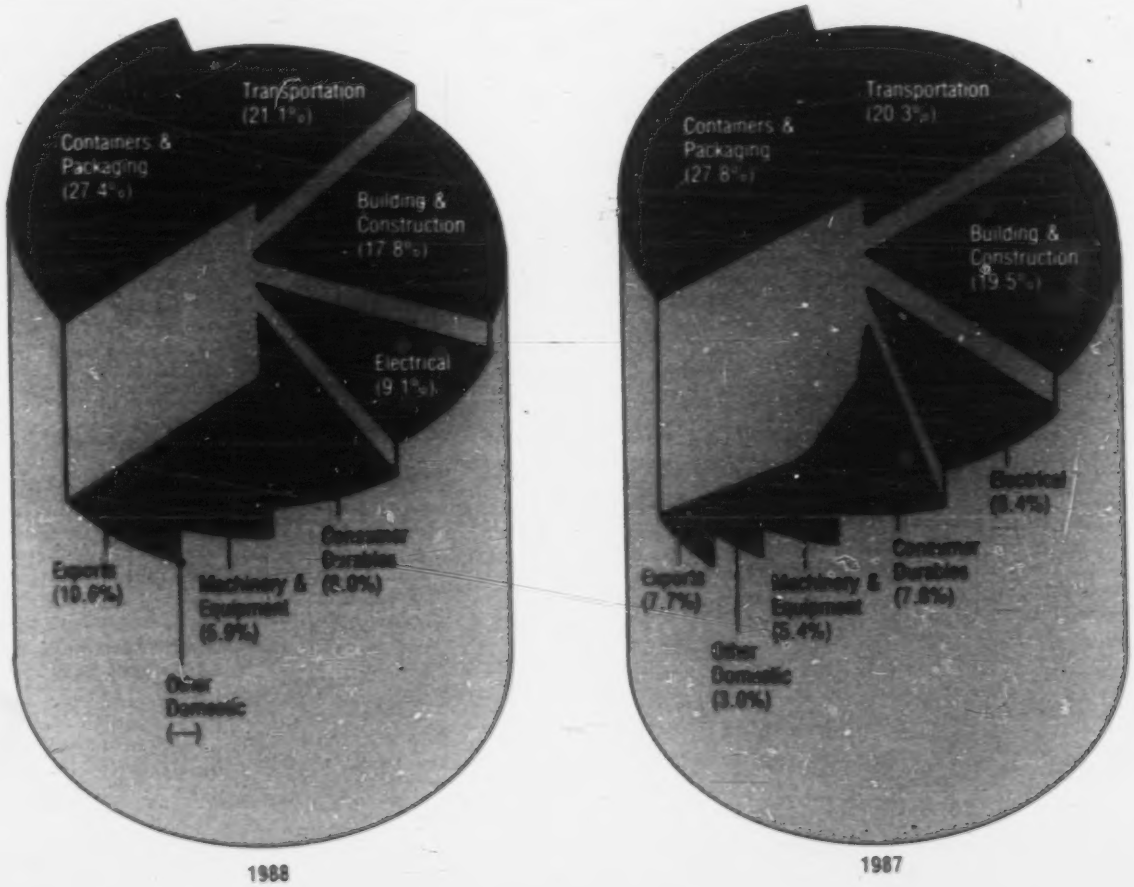
r — Revised

* Net Shipments: exclude intra-industry shipments for further fabrication. It is the most accurate measure of industry output to markets because it eliminates duplication. Reported receipts of aluminum for further processing are eliminated.

** Statistical Adjustment: accounts for net shipments of aluminum reported by the Bureau of the Census which the Aluminum Association believes were either over or understated in the amounts indicated due to excessive or insufficient reporting. It also includes otherwise unpublished Census revisions. The addition of the statistical adjustments reconciles the amounts reported by the Bureau of the Census with the net shipments that the Aluminum Association feels are more correct.

SOURCE: Estimated by the Statistical and Market Research Committee of the Aluminum Association, Inc.

Distribution of Aluminum Net Shipments* by Major Market



Product Net Shipments* by Major Market
1978-1988

Millions of pounds

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
Total Aluminum											
Building & construction	2,905	3,177r	3,157	3,032	2,866	2,870	2,257	2,553	2,624	3,058	3,226
Transportation	3,456	3,307r	3,025	3,049	3,083	2,427	1,836	2,204	2,247	3,120	3,157
Consumer durables	1,309	1,271r	1,190	1,066	1,106	1,054	822	1,000	892	1,055	1,205
Electrical	1,485	1,368r	1,359r	1,394r	1,478r	1,268r	1,107r	1,324r	1,376r	1,588	1,502
Machinery & equipment	973	883r	845	832	832	779	704	881	844	985	1,056
Containers & packaging	4,489	4,524	4,247	4,105	4,031	3,918	3,568	3,512	3,334	3,223	3,141
Other	586	580r	555	583	614	576	526	645	600	652	660
**Statistical adjustment	−579	−89r	+51r	+8r	+435r	+20r	+390r	+325r	+241r	+163	−269
Domestic, total	14,624	15,021	14,429	14,069	14,445	12,912	11,210	12,444	12,158	13,844	13,678
Exports	1,734	1,255	911	1,204	1,076	1,241	1,295	1,370	2,193	1,023	747
Aluminum Total	16,358	16,276	15,340	15,273	15,521	14,153	12,505	13,814	14,351	14,867	14,425
Ingot (1)											
Building & construction	84	92	107	106	102	91	86	90	86	114	109
Transportation	1,601	1,474r	1,348	1,415	1,420	1,172	888	1,017	960	1,349	1,311
Consumer durables	301	287	306	301	301	275	259	291	265	350	374
Electrical	207	187	197	196	196	170	165	190	176	224	213
Machinery & equipment	325	292	299	295	290	256	249	293	274	354	363
Containers & packaging	5	5	7	12	18	20	15	22	20	15	11
Other	255	237	234	255	258	248	227	313	294	343	344
**Statistical adjustment	−509	−61r	—	—	+400	—	+384	+314	+204	+119	−306
Domestic, total	2,269	2,513	2,498	2,579	2,985	2,132	2,273	2,530	2,279	2,868	2,419
Exports	912	628	472	786	534	813	817	706	1,445	419	253
Ingot Total	3,181	3,141	2,970	3,365	3,579	3,045	3,090	3,236	3,724	3,287	2,672
Mill Products											
Building & construction	2,821	3,085r	3,050	2,927	2,764	2,779	2,171	2,463	2,538	2,944	3,117
Transportation	1,855	1,833r	1,677	1,634	1,663	1,255	948	1,187	1,287	1,771	1,846
Consumer durables	1,008	984r	884	765	805	779	563	709	627	705	831
Electrical	1,278	1,181r	1,162r	1,198r	1,282r	1,098r	942r	1,134r	1,200r	1,364	1,289
Machinery & equipment	648	591r	546	537	542	523	455	586	570	631	693
Containers & packaging	4,484	4,519	4,240	4,093	4,013	3,898	3,553	3,490	3,314	3,208	3,130
Other	331	343r	321	328	356	328	299	332	306	309	316
**Statistical adjustment	−70	−28r	+51r	+8r	+35r	+20r	+6r	+11r	+37r	+44	+37
Domestic, total	12,355	12,508	11,931	11,490	11,460	10,680	8,937	9,914	9,879	10,976	11,259
Exports	822	627	439	418	482	428	478	664	748	604	494
Mill Products Total	13,177	13,135	12,370	11,908	11,942	11,108	9,415	10,578	10,627	11,580	11,753

NOTE: Total mill products are net shipments of aluminum mill products as reported by domestic producers to the U.S. Department of Commerce, plus imported mill products, less receipts of these imports by domestic producers.

Footnotes: See page 17

Product Net Shipments* by Major Market

Product Net Shipments* by Major Market 1978-1988

Millions of Pounds

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
Sheet											
Building & construction	1,293	1,501	1,401	1,350	1,295	1,424	1,022	1,190	1,250	1,597	1,749
Transportation	811	792	712	676	720	567	386	499	499	824	932
Consumer durables	531	532	476	418	411	437	295	380	333	353	424
Electrical	291	266	243	243	264	218	186	242	199	243	239
Machinery & equipment	336	318	290	288	285	285	229	282	258	267	313
Containers & packaging	3,831	3,868	3,626	3,509	3,395	3,275	2,977	2,869	2,693	2,559	2,488
Other	75	82	73	66	80	82	65	74	64	74	82
**Statistical adjustment	−27	−20	−23	−24	−10	+15	+15	4	11	+11	+8
Domestic total	7,141	7,339	6,798	6,526	6,440	6,303	5,175	5,532	5,285	5,928	6,235
Exports	644	469	337	303	373	296	296	368	375	374	265
Sheet Total	7,785	7,808	7,135	6,829	6,813	6,599	5,471	5,900	5,660	6,302	6,500
Plate											
Building & construction	1	1	1	1	1	1	1	1	1	1	1
Transportation	236	224	227	238	224	155	151	179	216	220	190
Consumer durables	1	1	1	1	1	1	1	1	1	1	1
Electrical	4	4	5	4	4	4	4	18	5	10	10
Machinery & equipment	23	22	19	18	21	16	18	29	30	37	41
Containers & packaging	—	—	—	—	—	—	—	—	—	—	—
Other	20	18	17	16	13	13	14	12	13	12	10
**Statistical adjustment	—	—	—	−5	−8	—	—	—	—	—	—
Domestic total	285	270	270	273	256	190	189	240	266	281	253
Exports	41	34	23	26	30	23	27	43	51	30	27
Plate Total	326	304	293	299	286	213	216	283	317	311	280
Foil											
Building & construction	45	57r	48	46	38	38	26	35	29	38	37
Transportation	63	61r	52	52	49	45	29	32	31	41	45
Consumer durables	167	157r	131	115	134	106	77	112	84	112	122
Electrical	9	9r	11	13	20	22	19	25	23	30	27
Machinery & equipment	15	15r	14	15	17	16	14	17	16	20	21
Containers & packaging	650	648	611	580	613	613	570	614	614	640	633
Other	9	10r	9	7	7	5	3	8	5	3	1
**Statistical adjustment	+27	−62r	+23	+25	+7	—	—	—	—	—	—
Domestic total	985	895	899	853	885	845	738	843	802	884	886
Exports	34	32	13	12	12	11	13	21	38	21	12
Foil Total	1,019	927	912	865	897	856	751	864	840	905	898
Extruded Shapes											
Building & construction	1,392	1,432	1,506	1,432	1,334	1,233	1,045	1,163	1,176	1,215	1,235
Transportation	513	540	488	470	479	345	270	325	390	499	491
Consumer durables	193	191	183	151	134	103	79	88	96	117	133
Electrical	125	119	114	119	110	74	71	76	88	106	101
Machinery & equipment	129	116	106	106	90	75	71	80	88	108	115
Containers & packaging	—	—	—	—	1	3	—	—	—	1	—
Other	65	72	55	68	76	75	72	63	37	28	24
**Statistical adjustment	—	—	—	—	—	—	—	—	—	—	—
Domestic total	2,417	2,470	2,452	2,346	2,224	1,908	1,608	1,795	1,875	2,074	2,099
Exports	26	28	16	16	11	10	9	9	25	22	17
Extruded Shapes Total	2,443	2,498	2,468	2,362	2,235	1,918	1,617	1,804	1,900	2,096	2,116

Product Net Shipments* by Major Market
1978-1988

Millions of Pounds

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
Extruded Pipe & Tube											
Building & construction	32	32	35	37	33	25	31	23	23	31	29
Transportation	61	54	45	49	35	26	16	20	16	18	24
Consumer durables	86	75	68	55	44	31	25	22	24	21	28
Electrical	95	86	98	80	67	59	49	51	62	37	41
Machinery & equipment	42	33	38	29	15	14	16	21	26	29	35
Containers & packaging	—	—	—	—	—	—	—	—	—	—	—
Other	7	8	11	8	7	6	3	4	4	2	2
**Statistical adjustment	−30	−20	−22	−22	−24	−30	−50	−27	−29	—	—
Domestic, total	293	268	273	246	177	131	90	114	126	138	159
Exports	17	15	10	10	9	9	12	14	15	15	18
Extruded Pipe & Tube Total (3)	310	283	283	256	186	140	102r	128	141	153	177
Drawn Tube											
Building & construction					3	3	2	3	3	3	3
Transportation					9	6	5	8	11	17	18
Consumer durables					17	22	21	28	28	34	40
Electrical					8	9	9	9	10	10	13
Machinery & equipment					14	17	17	19	20	21	21
Containers & packaging					—	—	—	—	—	—	1
Other					4	7	6	7	8	10	10
**Statistical adjustment					—	—	—	—	—	—	—
Domestic, total					55	64	60	74	80	95	106
Exports					1	1	1	1	1	1	1
Drawn Tube Total	(3)	(3)	(3)	(3)	56	65	61	75	81	96	107
Welded Tube											
Building & construction					1	1	1	2	2	2	3
Transportation					—	—	—	1	1	1	3
Consumer durables					38	52	45	54	36	41	58
Electrical					2	3	3	4	4	4	5
Machinery & equipment					15	14	13	46	41	44	47
Containers & packaging					—	—	—	—	—	—	—
Other					1	1	1	3	2	2	2
**Statistical adjustment					+3	−15	−15	+4	+11	−11	−8
Domestic, total					60	56	48	114	97	83	110
Exports					—	—	—	—	—	—	
Welded Tube Total	(4)	(4)	(4)	(4)	60	56	48	114	97	83	110
Rod & Bar (2)											
Building & construction	11	14	13	22	27	25	23	25	29	29	33
Transportation	46	45	46	41	45	40	29	31	35	40	44
Consumer durables	16	15	14	13	15	17	11	13	15	15	16
Electrical	85	77	70	71	85	72	66	92	97	93	85
Machinery & equipment	66	53	51	52	53	54	46	52	51	53	52
Containers & packaging	—	—	—	—	—	—	—	—	1	1	—
Other	36	31	30	21	29	21	24	20	26	26	31
**Statistical adjustment	−50	+44	+30	—	+55	+49	+34	+51	+109	+84	+68
Domestic, total	210	279	254	220	309	278	233	284	363	341	329
Exports	24	23	21	23	22	24	52	103	137	62	60
Rod & Bar Total	234	302	275	243	331	302	285	387	500	403	389

Footnotes. See page 17

Product Net Shipments* by Major Market

Product Net Shipments* by Major Market
1978-1988

Millions of pounds

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
Bare Wire											
Building & construction	47	48	46	39	31	28	19	20	24	27	26
Transportation	15	13	12	12	9	4	4	4	5	8	8
Consumer durables	8	8	6	6	5	5	4	5	5	6	6
Electrical	9	9	7	7	9	8	8	9	11	11	10
Machinery & equipment	20	16	12	14	15	16	16	22	21	28	29
Containers & packaging	3	3	3	4	4	7	6	7	6	7	8
Other	6	5	5	4	2	2	3	3	4	6	4
**Statistical adjustment	+10	+10	+21	+12	—	−19	18	23	60	25	22
Domestic total	118	112	112	98	75	51	42	47	16	68	69
Exports	11	10	7	9	6	10	12	25	58	30	24
Bare Wire Total	129	122	119	107	81	61	54	72	74	98	93
ACSR & Bare Cable											
Building & construction	—	—	—	—	—	—	—	—	—	—	—
Transportation	—	—	—	—	—	—	—	—	—	—	—
Consumer durables	—	—	—	—	—	—	—	—	—	—	—
Electrical	277	221	238	277	341	324	299	311	367	387	335
Machinery & equipment	—	—		—	—	—	—	—	—	—	—
Containers & packaging	—	—		—	—	—	—	—	—	—	—
Other	—	—		—	—	—	—	—	—	—	—
**Statistical adjustment	—	—		—	—	—	—	—	+8	—	—
Domestic total	277	221	238	277	341	324	299	311	375	387	335
Exports	4	2	1	5	5	35	46	68	25	31	55
ACSR & Bare Cable Total	281	223	239	282	346	359	345	379	400	418	390
Insulated or Covered Wire & Cable											
Building & construction	—	—	—	—	—	—	—	—	—	—	—
Transportation	—	—	—	—	—	—	—	—	—	—	—
Consumer durables	—	—	—	—	—	—	—	—	—	—	—
Electrical	381	388r	374r	373r	369r	302r	225r	293r	330r	428	419
Machinery & equipment	—	—	—	—	—	—	—	—	—	—	—
Containers & packaging	—	—	—	—	—	—	—	—	—	—	—
Other	—	—	—	—	—	—	—	—	—	—	—
**Statistical adjustment	—	+20	+22	+22	+24	+30	+50	+27	+29	—	—
Domestic total	381	408	396	395	393	332	275	320	359	428	419
Exports	1	—	—	1	1	1	1	2	4	—	1
Insulated Wire & Cable Total	382	408	396	396	394	333	276	322	363	428	420
Forgings											
Building & construction	—	—	—	—	1	1	1	1	1	1	1
Transportation	103	97	87	89	87	62	53	82	79	98	85
Consumer durables	1	1	1	1	1	1	1	2	2	2	2
Electrical	—	—	—	—	1	1	1	1	1	1	1
Machinery & equipment	10	10	9	9	9	8	8	10	10	13	13
Containers & packaging	—	—	—	—	—	—	—	—	—	—	—
Other	17	13	15	17	12	13	12	10	11	8	9
**Stastical adjustment	−20	−20	−20	−15	—	—	—	—	—	—	5
Domestic total	111	101	92	101	111	86	76	106	104	123	116
Exports	8	7	5	7	4	3	3	3	3	4	—
Forgings Total	119	108	97	108	115	89	79	109	107	127	116

Product Net Shipments* by Major Market
1978-1988

Millions of pounds

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
Impacts											
Building & construction	—	—	—	—	—	—	—	—	—	—	—
Transportation	7	7	8	7	6	5	5	6	4	5	6
Consumer durables	5	4	4	4	5	4	4	4	3	3	1
Electrical	2	2	2	2	2	2	2	3	3	4	3
Machinery & equipment	7	8	7	6	8	8	7	10	9	11	6
Containers & packaging	—	—	—	—	—	—	—	—	—	—	—
Other	6	7	6	6	8	9	7	7	7	8	5
**Statistical adjustment	+20	+20	+20	+15	—	—	—	—	—	—	—
Domestic total	47	48	47	40	29	28	25	30	26	31	21
Exports	—	—	—	—	—	—	—	—	—	—	—
Impacts Total	47	48	47	40	29	28	25	30	26	31	21
Powder & Paste											
Building & construction	—	—	—	—	—	—	—	—	—	—	—
Transportation	—	—	—	—	—	—	—	—	—	—	—
Consumer durables	—	—	—	—	—	—	—	—	—	—	—
Electrical	—	—	—	—	—	—	—	—	—	—	—
Machinery & equipment	—	—	—	—	—	—	—	—	—	—	—
Containers & packaging	—	—	—	—	—	—	—	—	—	—	—
Other	90	97	100	115	117	94	89	121	125	130	136
**Statistical adjustment	—	—	—	—	12	10	10	17	20	15	14
Domestic total	90	97	100	115	105	84	79	104	105	115	122
Exports	12	7	6	6	8	5	6	7	16	14	14
Powder & Paste Total	102	104	106	121	113	89	85	111	121	129	136

* *Net Shipments exclude intra-industry shipments for further fabrication. It is the most accurate measure of industry output to markets because it eliminates duplication. Reported receipts of aluminum for further processing are eliminated.*

** *"Statistical Adjustment" accounts for net shipments of aluminum reported by the Bureau of the Census which the Aluminum Association believes were either over or understated in the amounts indicated due to excessive or insufficient reporting. It also includes otherwise unpublished Census revisions. The addition of the statistical adjustments reconciles the amounts reported by the Bureau of the Census with the net-shipments that the Aluminum Association feels are more correct.*

r — Revised (NR) not reported by Census.

(1) Includes primary and secondary ingot for castings, destructive uses and exports.
(2) Extruded rod & bar combined with rolled and continuous cast rod & bar from 1972 to present.
(3) Drawn tube combined with extruded pipe and tube.
(4) Welded tube combined with sheet.

SOURCE: Estimated by the Statistical and Market Research Committee of the Aluminum Association, Inc.

Trends in Selected Markets

Trends in Selected Markets*
1978-1988

BUILDING & CONSTRUCTION

Millions of Pounds

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
Windows, doors & screens, total	1,034	1,099	1,136	1,080	987	949	748	845	851	903	957
Ingot	32	34	40	37	37	33	30	34	36	46	41
Total mill products	1,002	1,065	1,096	1,043	950	916	718	811	815	857	916
Sheet	159	181	167	168	152	154	108	131	118	130	157
Plate	1	1	1	1	1	1	1	1	1	1	1
Extruded shapes	817	857	902	845	766	733	585	651	665	695	725
Rod & Bar[1]	—	—	—	9	15	14	11	14	15	15	16
Bare wire	25	26	25	20	16	14	13	14	15	16	17
Awnings & Canopies, total	98	132	129	132	147	152	105	114	143	156	177
Ingot	—	—	—	—	—	—	—	—	—	—	—
Total mill products	98	132	129	132	147	152	105	114	143	156	177
Sheet	78	111	109	111	122	130	86	93	121	131	150
Extruded shapes	18	20	18	19	22	19	16	18	19	21	23
Extruded pipe & tube[3]	1	1	2	2	1	1	1	1	1	2	2
Drawn tube[3]	—	—	—	—	1	1	1	1	1	1	1
Welded tube[4]	—	—	—	—	1	1	1	1	1	1	1
Residential siding, total	348	406	376	373	325	381	262	324	376	488	494
Sheet	347	405	375	372	324	380	261	323	375	487	493
Extruded shapes	1	1	1	1	1	1	1	1	1	1	1
Mobile homes, total	145	178	185	193	183	217	161	174	156	209	268
Ingot	4	5	6	5	5	5	4	4	3	5	5
Total mill products	141	173	179	188	178	212	157	170	153	204	263
Sheet	83	104	103	114	111	140	106	115	102	144	192
Extruded shapes	58	69	76	74	67	72	51	55	51	60	71
Bridge, street & highway, total	122	133	138	131	112	112	95	93	101	128	125
Ingot	13	14	16	16	16	14	13	12	12	16	15
Total mill products	109	119	122	115	96	98	82	81	89	112	110
Sheet	61	71	72	65	52	61	47	48	52	66	68
Foil	1	1	1	1	1	1	1	1	1	1	1
Extruded shapes	22	22	23	22	20	19	15	16	18	22	20
Pipe & tube[3]	23	23	24	25	22	16	18	15	17	22	20
Rod & bar[1]	1	1	2	2	1	1	1	1	1	1	1

Trends in Selected Markets*
1978-1988

TRANSPORTATION

Millions of pounds

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
Trucks & buses, total	506	470	436	419	466	357	273	310	287	497	449
Ingot	235	205	200	200	212	183	151	148	136	216	199
Total mill products	271	265	236	219	254	174	122	162	151	281	250
Sheet	148	144	128	123	151	96	68	85	77	158	137
Plate	6	6	5	5	4	4	3	4	4	8	7
Foil	1	1	1	1	1	—	—	—	—	—	—
Rod & bar[1]	2	2	1	1	1	2	2	2	2	5	5
Extruded shapes	68	70	65	55	50	49	32	45	44	69	64
Extruded pipe & tube[3]	3	2	2	2	1	1	1	1	1	1	1
Drawn tube[3]	—	—	—	—	1	1	1	1	1	1	1
Bare wire	—	—	—	—	—	—	—	—	—	1	1
Forgings	42	39	33	31	34	20	14	23	21	37	33
Impacts	1	1	1	1	1	1	1	1	1	1	1
Passenger cars, total[2]	1,746	1,630r	1,545	1,547	1,542	1,279	911	1,105	1,046	1,501	1,571
Ingot	1,253	1,162r	1,101	1,109	1,108	917	662	781	746	1,008	1,003
Total mill products	493	468r	444	438	434	362	249	324	300	493	568
Sheet	313	296	286	274	284	235	156	199	180	333	392
Plate	2	2	1	1	1	1	1	1	1	1	2
Foil	56	55r	47	46	43	40	26	28	24	36	41
Rod & bar[1]	22	20	22	20	18	19	9	9	10	11	11
Extruded shapes	46	49	46	53	43	34	37	59	61	73	77
Extruded pipe & tube[3]	39	33	26	27	22	18	9	13	9	10	14
Drawn tube[3]	—	—	—	—	5	3	1	4	7	12	13
Bare wire	2	2	3	3	4	1	1	1	1	1	1
Forgings	11	9	11	12	12	10	8	8	6	14	14
Impacts	2	2	2	2	2	1	1	2	1	2	3
Trailers & semi-trailers, total	425	450	388	386	425	301	174	211	243	388	425
Ingot	29	32	28	30	31	20	17	20	21	33	33
Total mill products	396	418	360	356	394	281	157	191	222	355	392
Sheet	153	167	143	140	158	124	62	78	88	143	165
Plate	9	9	10	11	9	7	4	7	9	14	15
Rod & bar[1]	1	1	1	1	1	1	1	1	1	2	2
Extruded shapes	229	237	203	201	222	147	88	103	122	194	208
Pipe & tube[3]	3	3	2	2	2	1	1	1	1	1	1
Bare wire	1	1	1	1	2	1	1	1	1	1	1
Forgings	—	—	—	—	—	—	—	—	—	—	—

Footnotes. See page 20

Trends in Selected Markets

Trends in Selected Markets*
1978-1988

Millions of pounds

CONSUMER DURABLES	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
Air conditioners, freezers, refrigerators, total	448	417r	375	315	337	275	219	290	249	304	357
Ingot	41	35	36	33	32	30	25	33	29	38	39
Total mill products	407	382r	339	282	305	245	194	257	220	266	318
Sheet	157	150	134	118	125	108	95	117	106	116	138
Foil	163	150r	129	113	132	104	75	109	81	108	117
Rod & Bar	1	1	1	1	—	—	—	—	—	—	—
Extruded shapes	33	32	31	17	15	13	12	13	13	19	31
Extruded pipe & tube[3]	53	49	44	33	30	16	11	14	12	13	13
Drawn tube[3]	—	—	—	—	2	2	1	4	8	10	14
Portable appliances, total	52	52	49	47	53	55	44	59	56	70	76
Ingot	28	28	30	28	31	30	26	31	30	41	43
Total mill products	24	24	19	19	22	25	18	28	26	29	33
Sheet	21	21	17	16	18	21	14	23	22	24	27
Extruded shapes	2	2	1	2	2	2	3	3	2	2	2
Pipe & Tube[3]	1	1	1	1	1	1	1	1	1	2	3
Rod & bar[1]	—	—	—	—	1	1	—	1	1	1	1
Cooking utensils, total	143	159	151	150	175	206	136	171	161	152	171
Ingot	22	24	26	25	26	23	21	26	24	27	28
Total mill products	121	135	125	125	149	183	115	145	137	125	143
Sheet	118	132	122	121	144	177	109	140	132	121	139
Extruded shapes	2	2	2	3	4	4	4	4	4	3	3
Bare wire	1	1	1	1	1	1	1	1	1	1	1
CONTAINERS & PACKAGING											
Household & institutional foil, total	281	285	270	267	270	283	270	287	283	290	257
Metal cans total mill products	3,698	3,732	3,502	3,381	3,251	3,140	2,858	2,725	2,583	2,445	2,349
Sheet	3,698	3,732	3,502	3,381	3,251	3,140	2,858	2,725	2,583	2,445	2,349
Semi-rigid food containers Total mill products	161	163	167	157	173	158	134	153	160	159	176
Sheet	25	30	27	25	33	21	19	38	20	22	23
Foil	136	133	140	132	140	137	115	115	140	137	153

r — revised

** — These "selected markets" represent either those in which The Aluminum Association has marketing programs, or which are important aluminum market categories. They only account for a portion of aluminum shipments to each major market.*

(1) Extruded rod and bar combined with rolled and continuous cast and rod bar.

(2) Shipments to "Passenger Cars" cover new domestic automobile production, spare parts, accessories and after-market parts. Shipments for light trucks and vans are included in Trucks and Buses.

(3) Drawn tube combined with extruded pipe & tube.

(4) Welded tube combined with sheet.

NOTE: For information on years prior to 1978, see the Aluminum Statistical Review—Historical Supplement.

SOURCE: Estimated by the Statistics Task Group Committee of the Aluminum Association, Inc.

U.S. Aluminum Supply

The U.S. aluminum supply increased 499,481 metric tons in 1988 to a total of 7,533,749 metric tons. This represents a 7.1 percent rise compared to the 1987 supply level. Primary production at 3,944,528 metric tons was up 17.9 percent from the 1987 production of 3,346,852 metric tons.

Primary imports of 1,027,257 metric tons were 17.5 percent less than the 1987 level of 1,245,524 metric tons. Imports of mill products decreased 3.5 percent to 439,964 metric tons during 1988 as compared to 455,892 metric tons in 1987.

Import data for both years reflect the reimports of metal exported for processing and returned to further processing in accordance with tariff arrangements under TSUSA 806.30 (Tariff Schedules of the United States Annotated).

Secondary recovery (domestic and imports) was 2,122,000 metric tons.

The graph on page 22 illustrates the relative change in the portions of total aluminum supplies from each source for the years 1978 through 1988.

The table on page 23 details the total supply of aluminum and its principal sources for the years 1942 through 1988 before any adjustments for stockpile deliveries or withdrawals. The significance of the stockpile and its effect on total supply are described on page 24.

The growth of U.S. primary aluminum production over the past decade is outlined on the graph and detailed in the table on page 25.

Installed capacity by company is presented for the years 1978 through 1988 on page 26. The 1988 year-end primary aluminum capacity in the U.S. was 3,901,800 metric tons, up 0.7 percent from 1987.

Aluminum recovery from scrap is an important contributor to the total aluminum supply. Data showing the increase in this source of supply for the years 1946 through 1988 are presented on pages 30 and 31.

Used aluminum beverage cans are an important part of the U.S. supply of aluminum. During 1988, U.S. consumers recycled over 1.5 billion pounds of used aluminum beverage cans.

Total Supply

1988 SUPPLY UP 7.1 PERCENT

Total supply increased 7.1 percent to 7,533,749 metric tons in 1988.

Changes vs. 1987

Primary production	+17.9%
Imports, Primary	−17.5%
Imports, Mill Products	−3.5%
Secondary Recovery	+6.8%

Since 1978 the total supply has expanded at an average rate of 0.6 percent a year. In 1988 primary production represented 54 percent of total supply; imports accounted for 20 percent; and secondary recovery represented 26 percent.

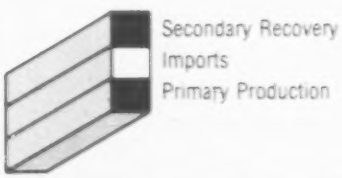
In the ten years 1978-1988, secondary recovery grew at a 2.7 percent annual rate, while primary reduction decreased at a 3.0 percent annual rate.

DESCRIPTION

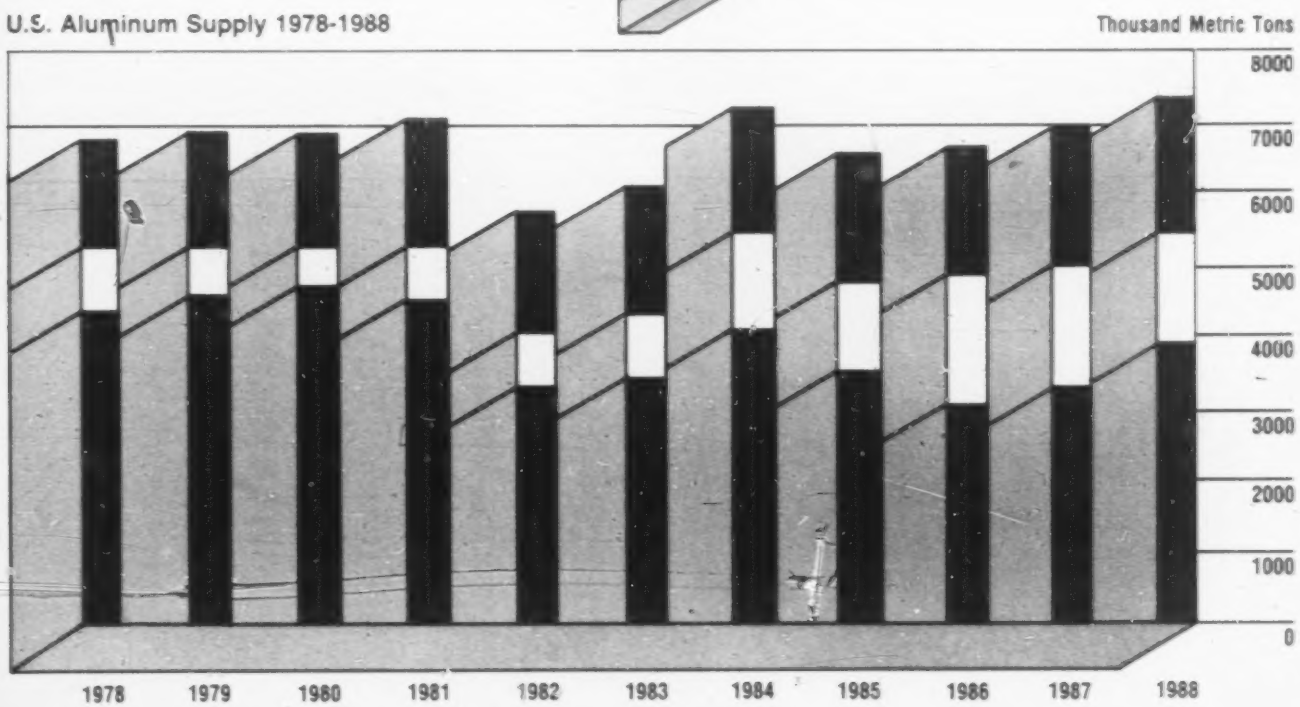
United States supply of aluminum consists of domestic primary production, imports of primary and mill products, and metal recovered from scrap. No adjustment is made in this presentation for shipments to or withdrawals from the government stockpile. This is shown on page 24.

Detailed data on United States supply of aluminum from 1942 to 1988 are shown in the table on page 23.

For a picture of domestic primary production, see page 25. For the relationship of domestic primary production to world production, see pages 44-45. For a breakdown of imports, see pages 38-39. For further information on secondary recovery, see pages 30 and 31.



U.S. Aluminum Supply 1978-1988



Total Supply
1942-1988

Thousands of Metric Tons

Year	Total Supply	Domestic Primary Production	Imports			Secondary Recovery		
			Total	Primary[1]	Mill Products[1]	Total	Domestic[2]	Imported Scrap[1,2]
1942	753	473	102	97	5	178	178	(*)
1943	1,242	835	123	123	(*)	285	285	(*)
1944	1,093	704	92	91	(*)	297	295	1
1945	1,029	449	305	302	3	275	271	4
1946	674	371	39	38	1	264	252	12
1947	859	519	14	14	(*)	326	313	13
1948	965	566	81	75	5	319	260	59
1949	822	547	78	70	7	197	164	33
1950	1,099	652	171	161	10	276	221	55
1951	1,171	759	130	111	19	282	265	16
1952	1,264	850	131	116	15	282	276	6
1953	1,795	1,136	303	273	30	356	334	22
1954	1,830	1,325	214	201	13	291	284	7
1955	2,014	1,420	200	179	21	393	376	18
1956	2,153	1,523	232	210	22	398	388	10
1957	2,133	1,495	224	205	20	415	404	11
1958	2,009	1,420	259	232	28	329	321	8
1959	2,457	1,773	268	218	50	416	407	9
1960	2,406	1,828	178	140	38	401	397	4
1961	2,402	1,727	230	181	49	445	440	5
1962	2,796	1,921	341	282	59	533	528	5
1963	3,118	2,098	419	377	42	604	593	8
1964	3,372	2,316	409	357	51	648	641	7
1965	3,817	2,499	543	479	65	774	752	22
1966	4,116	2,693	591	475	116	833	805	28
1967	4,254	2,966	466	408	59	821	797	25
1968	4,572	2,953	684	622	62	935	904	31
1969	4,991	3,441	484	425	59	1,067	1,043	24
1970	4,950	3,507	406	318	88	937	907	30
1971	5,146	3,561	582	503	78	1,004	953	51
1972	5,445	3,740	684	598	86	1,022	1,022	(2)
1973	5,759	4,109	523	461	63	1,127	1,127	(2)
1974	6,123	4,448	511	461	50	1,163	1,163	(2)
1975	5,093	3,519	453	394	59	1,121	1,121	(2)
1976	5,799	3,857	608	522	86	1,334	1,334	(2)
1977	6,256	4,117	683	608	75	1,456	1,456	(2)
1978	6,783	4,358	907	688	220	1,518	1,518	(2)
1979	6,880	4,557	711	518	193	1,612	1,612	(2)
1980	6,833	4,653	603	527	76	1,577	1,577	(2)
1981	7,061	4,489	782	645	138	1,790	1,790	(2)
1982	5,762	3,274	823	616	207	1,666	1,666	(2)
1983	6,149	3,353	1,023	743	281	1,773	1,773	(2)
1984	7,235	4,099	1,376	882	494	1,760	1,760	(2)
1985	6,594	3,500	1,332	869	463	1,762	1,762	(2)
1986	6,655	3,039	1,843	1,349	494	1,773	1,773	(2)
1987	7,034r	3,347	1,701	1,246	456	1,986r	1,986r	(2)
1988p	7,534	3,945	1,467	1,027	440	2,122	2,122	(2)

r — Revised Detail may not add due to rounding.

p — Preliminary

(s) Less than 0.5 thousands of metric tons.

CONVERSION FACTOR: One metric ton = 2,204.6 pounds.

(1) Some imports of "starter" metal, classified by the Bureau of The Census in 1954-1957 as scarp, have here been classified as primary metal, as estimated by the Department of Commerce.

(2) Domestic secondary data are recoverable metal content for estimated total scrap consumption, as estimated by the Bureau of Mines. Before 1972 total supply included both domestic secondary recovery and an estimated 90 percent recovery from reported scrap imports. Beginning in 1972 the Bureau of Mines required reporting of imported scrap recovery data and these data are included in the domestic secondary figures beginning with that year.

(3) Starting in 1970, includes reimports of metal exported for processing and returned for further processing. (TSUSA 806.30)

SOURCE: U.S. Department of Commerce, Bureau of the Census, Department of Interior, and Bureau of Mines.

U.S. Suppliers' Inventories

INVENTORIES DOWN 0.6 PERCENT

The Bureau of the Census began reporting U.S. Suppliers' aluminum inventory in 1968. The figures include all forms of scrap, ingot, metal in process and finished products. During 1988 inventories decreased by 24 million pounds to year-end inventory of 4,151 million pounds.

U.S. Suppliers' Inventories 1978-1988

Millions of pounds at end of year

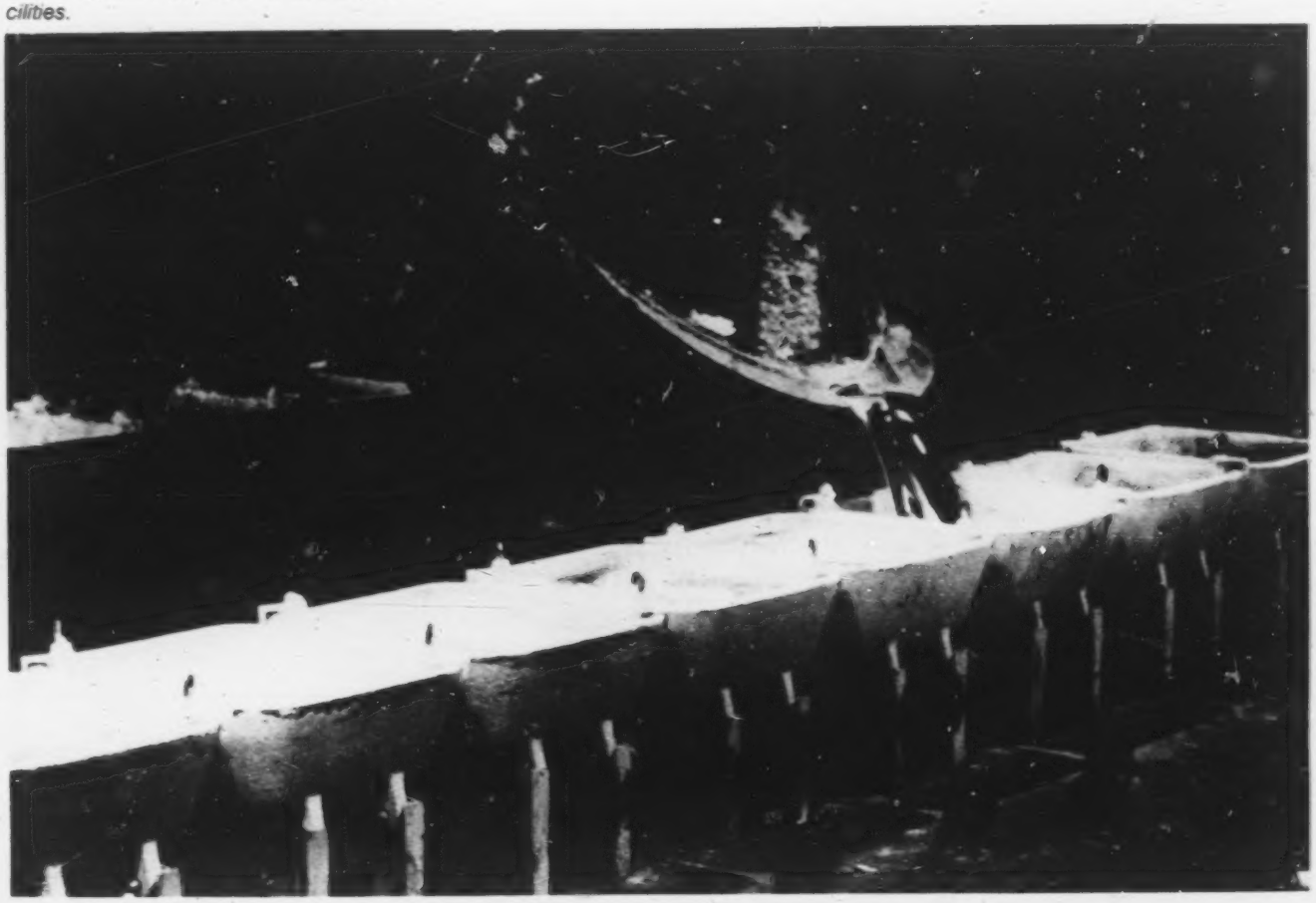
	Type of Supplier			
Year*	Total	Integrated	Non Integrated	Secondary Smelter
1978	5,494	4,460	776	258
1979	5,125	4,124	768	233
1980	5,076	4,018	797	261
1981	6,607	5,524	798	266
1982	6,199	5,224	759	216
1983	4,994	3,979	853	163
1984	5,850	4,692	929	229
	Total	Ingot	Scrap	Other
1985	5,165	2,235	567	2,364
1986	4,928	1,973	630	2,324
1987	4,175	1,466	587	2,123
1988	4,151	1,410	650	2,091

Detail may not add due to rounding.

**Prior to 1978 consult the Aluminum Statistical Review—Historical Supplement.*

SOURCE: U.S. Department of Commerce, Bureau of the Census Current Industrial Report M33-2.

Molten aluminum is poured into forms to make ingot for shipping to fabricating facilities.



Production of Primary Aluminum

PRODUCTION UP 17.9 PERCENT

Primary aluminum production totaled 3,944,528 metric tons in 1988 vs. the production of 3,346,852 metric tons in 1987. In the decade 1978-1988 the average annual rate of change was −3.0 percent.

DESCRIPTION:

In the United States, primary production of aluminum was begun in 1888 by the Pittsburgh Reduction Company. Data on aluminum production started in 1893, covering the industry from its very early period.

Data for 1978-1988 are presented here for your review. Data prior to 1978 may be obtained from the Aluminum Statistical Review—Historical Supplement.

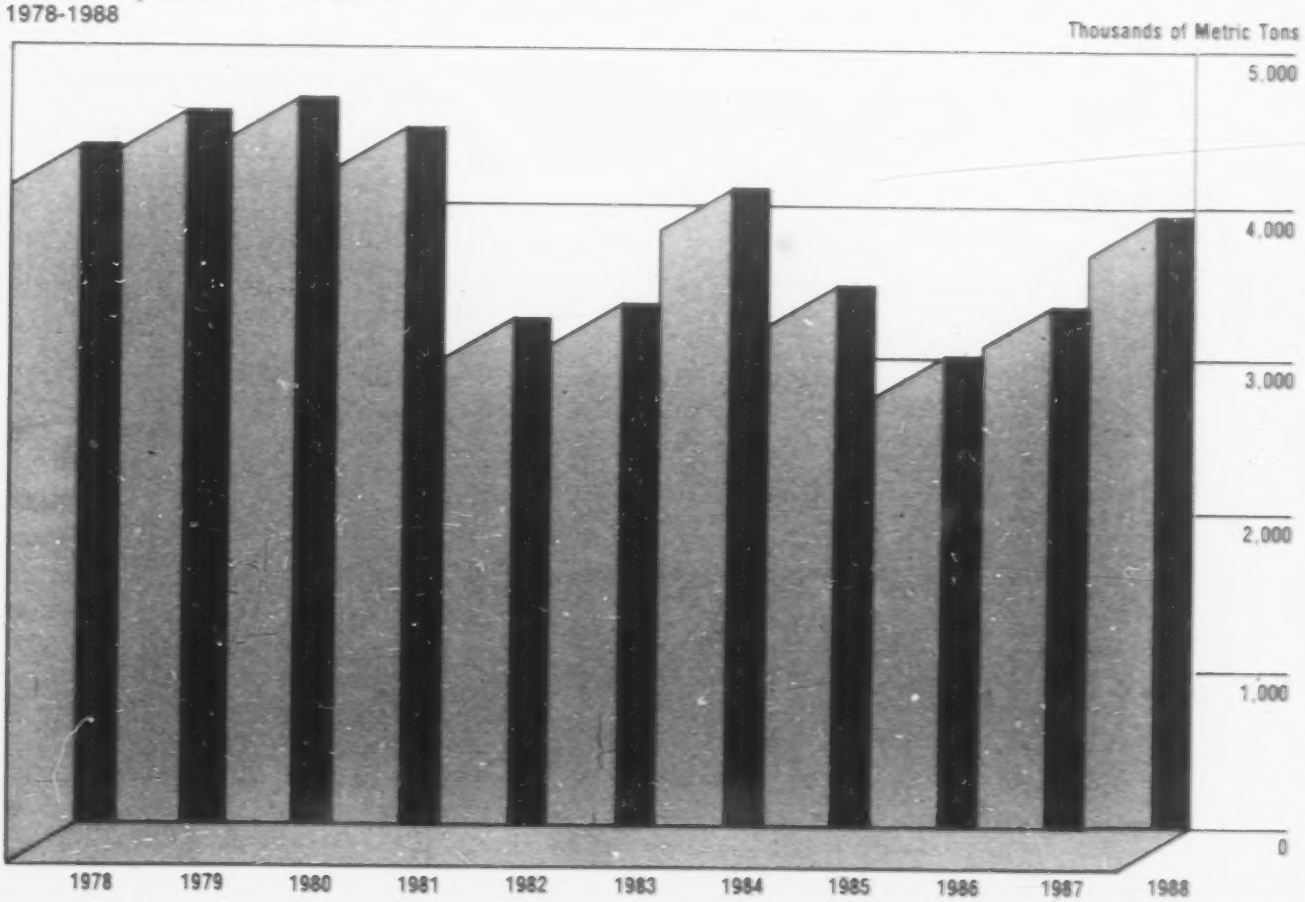
Production of Primary Aluminum in U.S.A. 1978-1988

Year*	Thousands of Metric Tons
1978	4,358.0
1979	4,556.9
1980	4,653.6
1981	4,488.7
1982	3,273.7
1983	3,353.3
1984	4,099.1
1985	3,499.7
1986	3,038.7
1987	3,346.9
1988	3,944.5

*Prior to 1978 consult the Aluminum Statistical Review—Historical Supplement.

SOURCES: The Aluminum Association, Inc.
CONVERSION FACTOR
One metric ton = 2,204.6 pounds.

U.S. Primary Aluminum Production 1978-1988



SOURCE: the Aluminum Association

U.S. Primary Aluminum Capacity

CAPACITY UP 0.7 PERCENT
Total annual primary aluminum installed capacity as of December 31, 1988 was 3,901,800 metric tons.

The percentage distribution of U.S. primary capacity by company at year-end 1988 was: Alcoa, 29.6%; Alumax, 15.4%; Reynolds, 11.5%; Kaiser, 9.8%; Ormet, 6.3%; Noranda, 5.2%; Alcan, 4.2%; Columbia Falls, 4.2%; Vanalco, 2.9%; National Aluminum, 2.4%; Northwest Aluminum, 2.1%; Southwire, 2.0%.

DESCRIPTION:

There were thirteen domestic primary producer companies as of December 31, 1988. They were Alcan Aluminum Corp., Aluminum Company of America, Alumax, Inc., Columbia Falls Aluminum, Columbia Aluminum Corp., Kaiser Aluminum & Chemical Corporation, National Aluminum Company (54.5% interest in National-Southwire), Noranda Aluminum Incorporated, Northwest Aluminum, Ormet Corp., Reynolds Metals Company, Southwire Company (45.5% interest in National-Southwire) and Vanalco, Inc.

U.S. Primary Aluminum Capacity[1]
1978-1988

Thousands of Metric Tons

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
Alcoa	1,155.0	1,155.0	1,095.0	1,430.0	1,429.7	1,429.7	1,429.7	1,564.9	1,564.9	1,542.2	1,542.2
Alumax[2]	600.0	600.0	600.0	599.0	595.1	595.1	385.6	377.1	377.1	198.4	198.4
Reynolds	448.0	422.8	422.8	422.8	781.1	884.5	884.5	884.5	884.5	884.5	884.5
Kaiser	383.8	383.8	526.2	526.2	526.2	656.8	656.8	656.8	656.8	656.8	656.8
ARCO Aluminum[3][4]	—	—	—	—	326.6	326.6	326.6	326.6	326.6	326.6	272.2
Ormet Corp.[5]	244.9	244.9	244.9	—	—	—	—	—	—	—	—
Consolidated	—	—	—	227.2	292.3	294.1	326.8	319.3	319.3	319.3	319.3
Howmet[3]	—	—	—	—	—	—	207.0	198.4	198.4	198.4	198.4
Noranda	204.1	204.1	204.1	204.1	204.1	204.1	204.1	127.0	127.0	127.0	127.0
Revere	—	—	—	184.7	184.9	184.9	184.9	184.3	184.3	184.3	184.3
Commonwealth[4]	—	—	167.8	167.8	—	—	—	—	—	—	—
Alcan[5]	163.3	163.3	163.3	163.3	—	—	—	—	—	—	
Columbia Aluminum[5]	167.8	167.8r	—	—	—	—	—	—	—	—	—
Columbia Falls[5]	163.3	163.3	163.3	163.3	—	—	—	—	—	—	—
Vanalco, Inc.	115.0	115.0	—	—	—	—	—	—	—	—	—
National Aluminum	95.4	95.4	95.4	95.4	93.9	86.2	81.6	81.6	81.6	81.6	81.6
Northwest Aluminum[3]	81.6	81.6	81.6	—	—	—	—	—	—	—	—
Martin Marietta[4]	—	—	—	81.5	249.5	249.5	249.5	190.5	190.5	190.5	190.5
Southwire	79.6	79.6	79.6	79.6	78.5	86.2	81.6	81.6	81.6	81.6	81.6
Total	3,901.8	3,876.6r	3,844.0	4,345.1	4,761.9	4,997.7	5,018.8	4,992.8	4,992.8	4,791.4	4,737.0

(1) Capacities shown are as reported for December 31. They include national ownership of plants owned by more than one company.
(2) Formally the Anaconda Company (Aluminum Division).
(3) Alumax acquired Howmet in 1983.
(4) Commonwealth acquired 67% of Martin Marietta in 1985.
(5) Alcan Aluminum and Columbia Falls Aluminum acquired 50% each of ARCO Aluminum in 1985.
(6) Formally included with Consolidated and Revere.
(7) Formally Martin Marietta Goldendale plant.

Note: Prior to 1978 consult the Aluminum Statistical Review Historical Supplement.

SOURCE: The Aluminum Association.
CONVERSION FACTOR: One metric ton = 2,204.6 pounds.

Number of Plants in the U.S.

Number of Plants in the U.S.

SELECTED YEARS

PRODUCT	1985	1982	1977
Primary Ingot	30	32	32
Secondary Ingot	69	76	89
Sheet and Plate	44	68	49
Foil	26	27	27
Rod & Bar, Rolled and Continuous Cast	18	22	31
Wire, Bare, Conductor & Nonconductor	61	69	125
ACSR and Aluminum Cable, Bare	16	16	59
Wire & Cable, Insulated or Covered	43	43	90
Extruded Products	217	226	222
Drawn Tube	19	19	22
Welded Tube	16	16	32
Powder	19	17	18
Forgings	48	44	74
Impacts	13	16	29

(a) Not available.

SOURCE: 1977 U.S. Department of Commerce
1982 and 1985 The Aluminum Association

The data presented here are based on a survey conducted by the Aluminum Association in 1985. Previous years are based on unofficial directories prepared by the U.S. Department of Commerce, Bureau of Industrial Economics.

The figures shown for each product for selected years represent number of plants—not companies, which in many instances operate more than one plant. No totals are shown since some plants produce more than one product. Data include captive plants (plants producing only for company's own use).

Five outline maps of the United States indicating the geographic distribution of aluminum plants by various product groups in 1985 are presented on pages 27-29.

For a detailed listing, contact the Aluminum Association for a copy of the U.S. Aluminum Industry Plant Directory (August, 1985).

★ *Primary*
■ *Secondary*

● *Foil*
★ *Sheet and Plate*

● *Bare Wire*
★ *Rolled and Continuous Cast Rod and Bar*
■ *ACSR and Cable and or Insulated or Covered Wire and Cable*

★ *Extrusions*

■ *Forgings and or Impacts*
● *Powder and Paste*
★ *Drawn and or Welded Tube*

Aluminum Scrap Consumption and Recovery

SCRAP CONSUMPTION UP 6.5 PERCENT

Total domestic industry scrap consumption on a gross weight basis, increased 6.5 percent to a 1988 level of 2,348,000 metric tons from the 1987 volume of 2,204,000 metric tons.

Secondary recovery totaled 2,122,000 metric tons with new scrap accounting for 51 percent and old scrap for 49 percent.

Old scrap recovery at 1,045,000 metric tons was up 22.7 percent from 1987. Reclamation from aluminum cans increased to an estimated 683,000 metric tons, up 12.7 percent from 1987 accounting for 54.6% of can shipments.

DESCRIPTION:

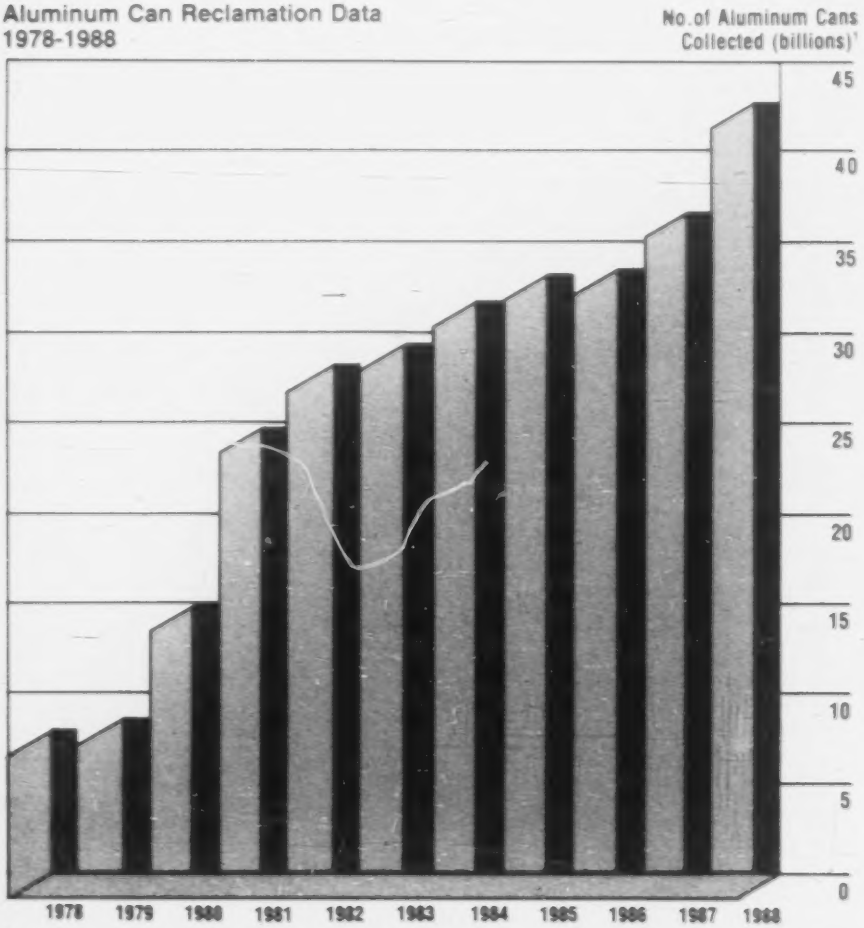
Recovery of aluminum from scrap, an important source of supply, is shown on pages 30 and 31. Two sets of scrap data are tabulated. The scrap consumption figures are on a gross weight basis as reported by plants consuming scrap. The aluminum recovery figures are on a recovered metal basis, that is the content of aluminum base alloy recovered from gross weight consumed. The figures in this table are consistent with domestic secondary recovery on page 23.

The aluminum recovery data are shown by source, that is by new and old scrap. New scrap, generated by plants making and products, and old scrap recovered from metal that has been used by consumers, are returned to plants making ingot and mill products and thus add to the total metal supply.

Through 1954, data on scrap consumption and recovery are based on complete reporting. Beginning in 1955, reported figures are expanded to industry totals by the Bureau of Mines to allow for a number of firms who do not report. In 1961, sweated pig consumption data were improved and included in old scrap.

Recovery of new scrap and old scrap over the past ten years has been about 26 percent of total supply (28.2 percent in 1988). However, this figures does not include "run-around" scrap consumed by the generating companies.

Aluminum Can Reclamation Data 1978-1988



[1] Calculation based on an Association can weight survey
*preliminary

Aluminum Can Reclamation Data 1978-1988

Year	Pounds of Aluminum Collected (millions)	No. of Aluminum Cans Collected (billions)[3]	Percent of Aluminum Cans Collected[4]
1978	340[2]	8.0	27.4
1979	360[2]	8.5	25.7
1980	609[2]	14.8	37.3
1981	1,017[2]	24.9	53.2
1982	1,124[2]	28.3	55.5
1983	1,144[2]	29.4	52.9
1984	1,226[2]	31.9	52.8
1985	1,245[5]	33.1	51.0
1986	1,233[5]	33.3	49.0
1987	1,335[5][6]	36.6	50.5
1988	1,505[5]	42.5	54.6

(1) Represents total industry; includes an additional 18 million pounds in the year 1974 which accounts for all-aluminum cans collected by non-members of the Aluminum Association.
(2) SOURCE: Net receipts—U.S. Department of the Interior, Bureau of Mines.
(3) Calculation based on an Association can weight survey.
(4) Based on Can Manufacturers Institute aluminum beverage can shipments data lagged one quarter.
(5) Estimated by the Statistical and Market Research Committee of the Aluminum Association.
(6) Beginning in 1987, data includes estimate of exported can scrap.

Aluminum Scrap Consumption and Recovery
1946-1988

Metric Tons

SCRAP CONSUMPTION	SCRAP CONSUMPTION (Gross Weight Basis) As Reported[6]				RECOVERY[5] (Recoverd Metal Basis)		
Year	Total Industry[1]	Total	Secondary Smelters	Primary Producers[2,3]	Others[4]	Total Industry[1]	From New Scrap	From Old Scrap
1946	312,000	312,063	215,900	90,719	5,443	252,266	170,133	82,133
1947	372,920	372,920	283,123	81,656	8,141	312,834	164,193	148,641
1948	294,380	294,380	197,465	91,131	5,783	260,162	173,391	86,771
1949	160,567	160,567	116,549	39,514	4,504	163,986	123,529	40,457
1950	247,838	247,838	174,224	61,976	11,638	221,052	151,781	69,272
1951	301,457	301,457	210,777	72,996	17,685	265,452	195,969	69,483
1952	315,459	315,459	231,410	70,706	13,343	276,261	211,610	64,650
1953	374,973	374,973	250,639	105,244	19,090	334,361	262,747	71,614
1954	317,985	317,985	216,882	82,959	18,144	283,994	223,722	60,272
1955	444,500	387,413	284,749	78,689	23,974	375,600	285,300	90,300
1956	469,000	398,569	301,017	80,517	17,035	388,300	300,300	88,000
1957	482,600	420,031	312,982	85,276	21,773	403,800	315,300	88,500
1958	390,100	340,709	250,170	70,110	20,430	321,100	249,000	72,100
1959	489,000	431,792	348,822	57,078	25,892	407,300	313,000	94,300
1960	474,500	400,507	321,046	49,321	30,141	397,300	311,100	86,200
1961	525,300	451,888	300,921	40,435	110,532	440,000	298,900	141,100
1962	635,000	539,665	401,132	33,131	105,402	527,900	376,900	151,000
1963	707,600	587,398	447,399	40,719	99,280	593,300	449,100	144,200
1964	771,100	646,150	488,970	53,450	103,720	641,400	494,400	147,000
1965	880,000	740,833	526,031	86,170	128,632	752,100	566,100	186,000
1966	979,800	813,149	579,477	113,841	119,831	805,200	635,300	169,900
1967	961,600	800,866	559,870	111,573	129,423	796,500	638,200	158,300
1968	1,105,000	920,865	634,391	138,053	148,421	904,500	740,300	164,200
1969	1,207,500	1,006,166	673,245	178,587	154,334	1,043,200	861,800	181,400
1970	1,058,700	882,276	589,973	139,025	153,279	907,200	728,500	178,700
1971	1,097,700	911,529	580,522	154,908	176,099	952,600	756,600	196,000
1972	1,217,500	1,045,480	640,918	186,184	218,378	1,021,500	794,700	226,800
1973	1,343,600	1,145,277	668,438	192,820	284,020	1,126,700	886,300	240,400
1974	1,313,600	1,094,131	571,735	216,781	305,616	1,163,000	887,200	275,800
1975	1,319,100	1,117,804	554,785	310,995	252,023	1,121,300	815,600	305,700
1976	1,579,400	1,329,458	688,553	331,298	309,607	1,334,400	963,400	371,000
1977	1,681,900	1,422,675	763,184	386,222	273,269	1,456,000	974,300	481,700
1978	1,733,600	1,466,492	800,777	396,770	268,944	1,517,700	996,100	521,600
1979	1,832,500	1,546,794	836,577	401,217	308,999	1,612,100	1,055,100	557,000
1980	1,798,100	1,536,454	802,191	491,491	242,771	1,576,700	959,800	616,900
1981	2,031,200	2,031,200	1,036,000	663,200	332,000	1,789,900	1,031,500	758,400
1982	1,900,600	1,900,600	880,000	673,100	347,500	1,665,600	883,600	782,000
1983	2,018,900	2,018,900	897,000	774,000	347,900	1,773,000	953,000	820,000
1984	2,010,000	2,010,000	872,000	782,000	356,000	1,760,000	935,000	825,000
1985	1,978,000	1,978,000	923,000	727,000	328,000	1,762,000	912,000	850,000
1986	1,986,000	1,986,000	883,000	781,000	322,000	1,773,000	989,000	784,000
1987	2,204,000r	2,204,000	878,000r	964,000	362,000	1,986,000r	1,134,000r	852,000r
1988p	2,348,000	2,348,000	950,000	1,025,000	373,000	2,122,000	1,077,000	1,045,000

r — revised
p — preliminary
(1) As reported, 1946-54, estimates expanded from reported figures, 1955 to present.
(2) For 1951-53 includes small amounts reported consumed by non-integrated fabricators.
(3) Represents 100 per cent scrap consumption coverage by primary producers.
(4) Most consumption of sweated pig apparently not reported by "others" prior to 1961.
(5) Recovery from sweated pig included in new scrap 1946-60, old scrap 1961 to present.
(6) Figures 1961 to present represent estimated full coverage.

SOURCE: U.S. Department of the Interior, Bureau of Mines and U.S. Department of Commerce, Bureau of Industrial Economics.

Conversion Factor: One metric ton = 2,204.6 pounds.

U.S. Aluminum Foreign Trade Statistics

IMPORTS ACCOUNT FOR 19.5 PERCENT OF U.S. SUPPLY
For the year 1988 imports of aluminum ingot and mill products accounted for 19.5 percent of total aluminum supply in the United States. Exports comprised 10.6 percent of total industry shipments. These facts illustrate the major role of foreign trade in the U.S. aluminum industry.

1988 imports of aluminum ingot dropped 17.5 percent to 2,265 million pounds as compared with 2,746 million pounds in 1987. Imports of semifabricated products also decreased, falling to 970 million pounds, down 3.5 percent from 1987.

Exports of aluminum ingot rose in 1988 to 882 million pounds, a 42.3 percent increase from a 1987 level of 620 million pounds. Exports of semifabricated products increased to 852 million pounds, 34.0 percent rise from 1987.

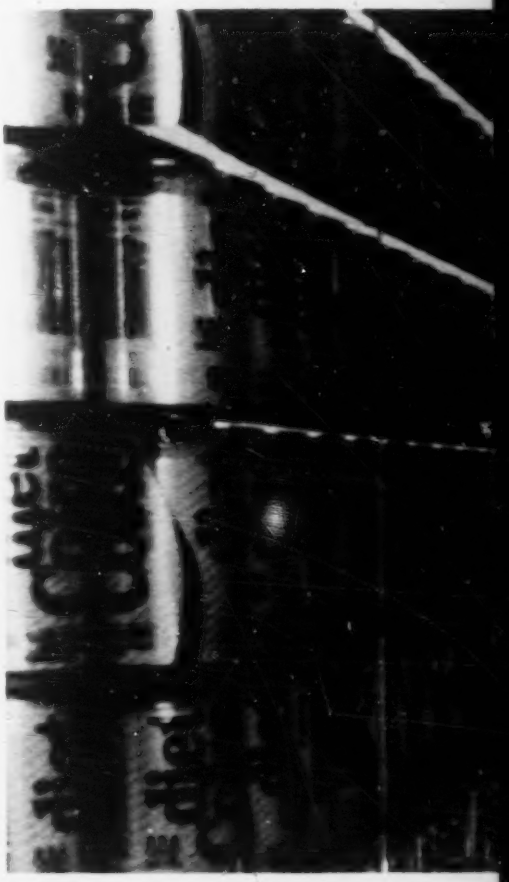
Exports of aluminum scrap showed a 32.1 percent increase to a 1,073 million pound level.

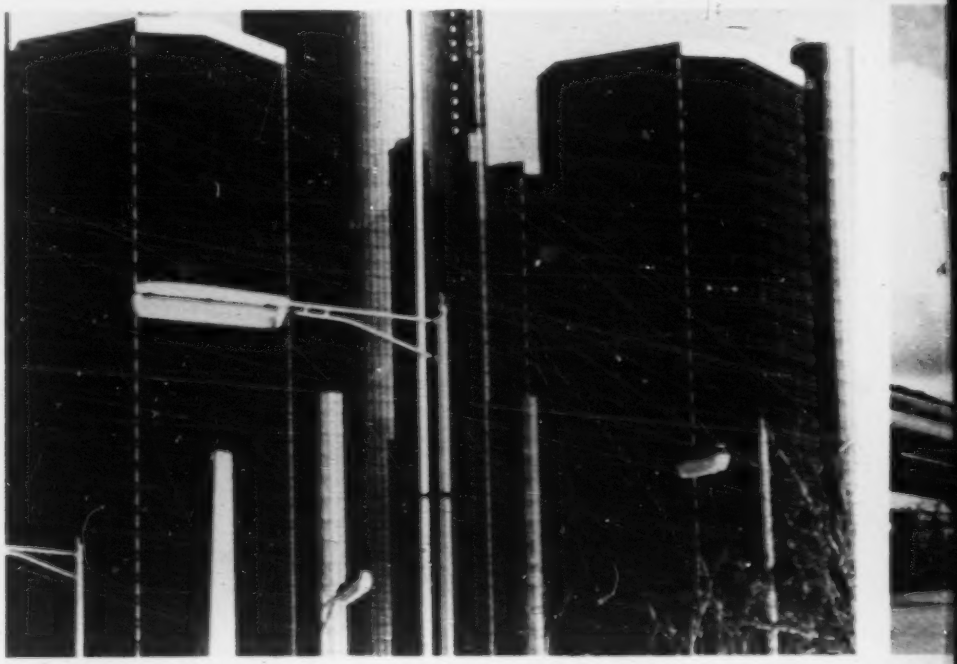
In 1988 the U.S. was again a net importer of aluminum by an amount of 885 million pounds.

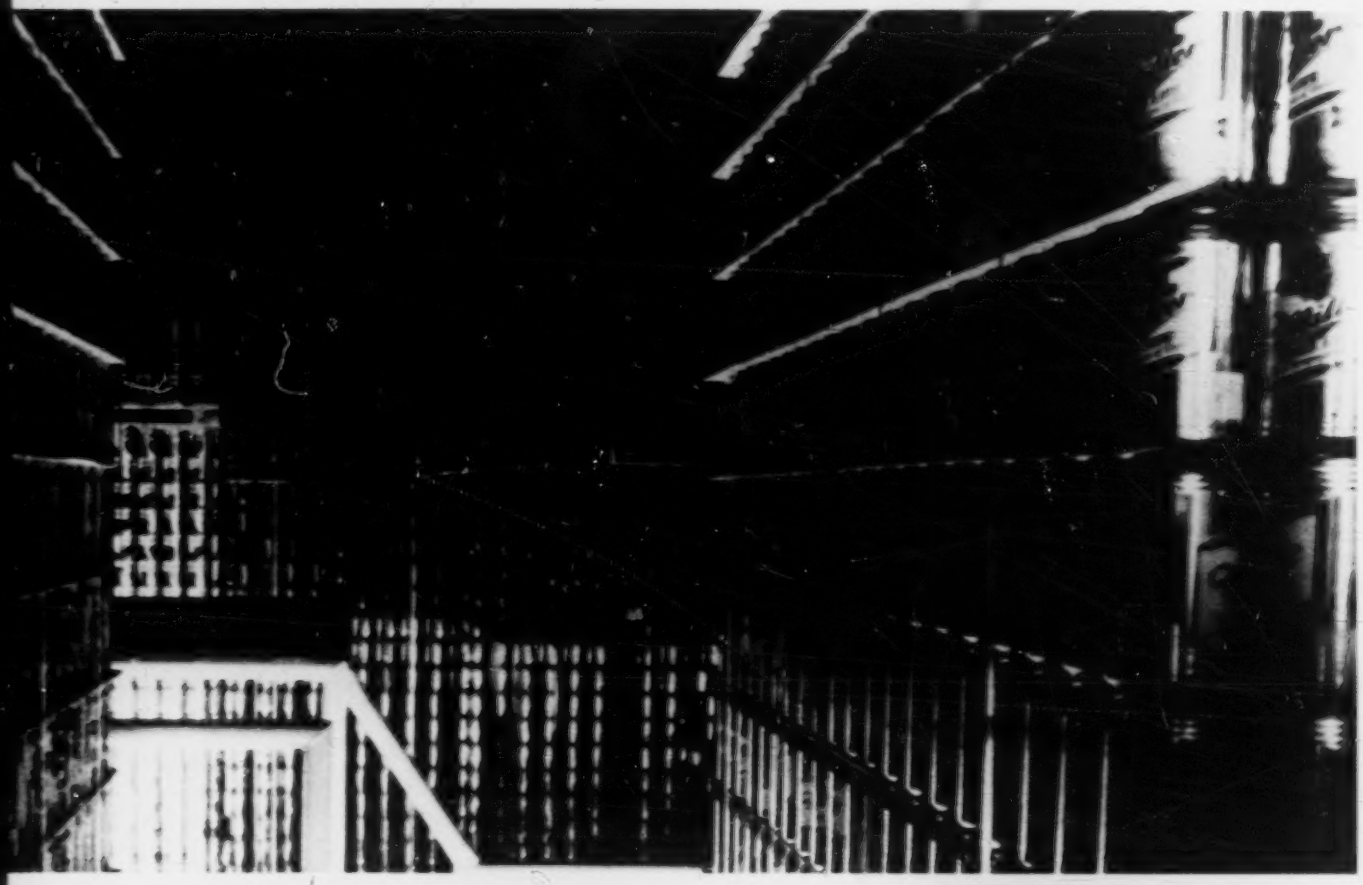
The product composition of United States imports and exports for the years 1978-1988 is graphically presented on pages 34 and 35. The data for total imports and exports as well as the detail of semifabricated aluminum product imports and exports for 1988 and the preceding 10 years are tabulated on pages 36 and 37. The total imports include dross and skimmings and the gross weight of scrap. In the table on United States Supply (page 23) dross and skimmings are excluded, and the recovered weight of imported scrap is used. It is counted as part of domestic secondary recovery for the years 1972-1988 and shown as a separate supply component for years prior to 1972.

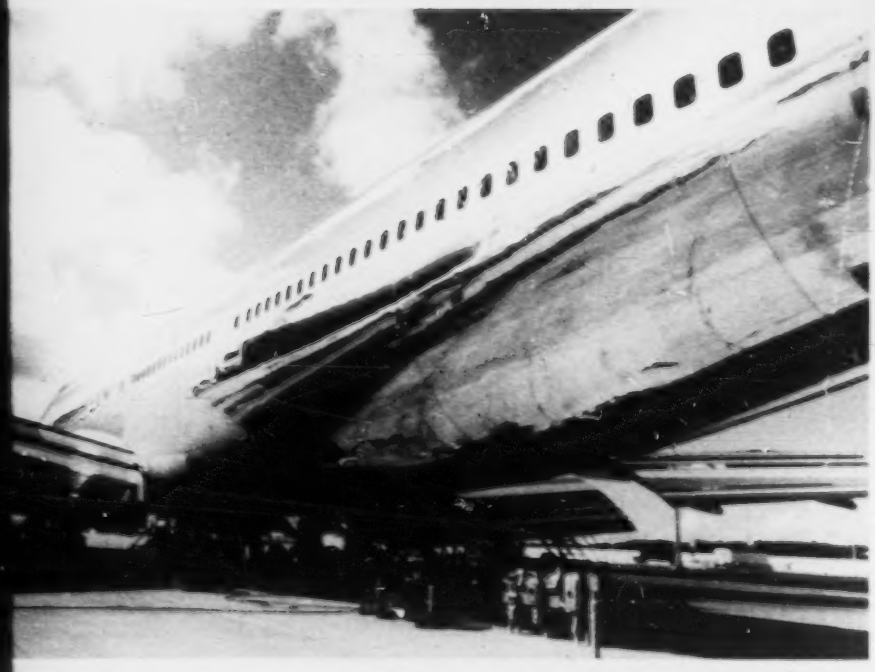
The detail of 1988 aluminum imports by product and country of origin is presented on pages 38 and 39. Similarly, the exports on a product basis by country of destination are detailed on pages 40 and 41.

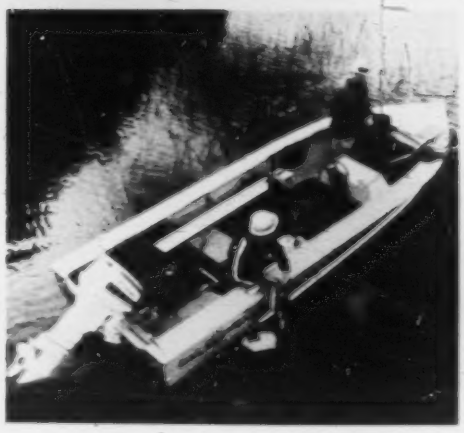
For information on years prior to 1978 see the Aluminum Statistical Review—Historical Supplement.











Aluminum is used in a wide variety of products around the world. Pictured here are just a few products of aluminum.

U.S. Imports

IMPORTS FALL 11.5 PERCENT
Aluminum imports totaled 3,692 million pounds during 1988, down 11.5 percent from 1987. Ingot, which accounted for 61.3 percent of all aluminum imported during 1988, decreased 17.5 percent to 2,265 million pounds. Canada topped the list of ingot importers with imports of 2,335 million pounds, 77.4 percent of total ingot imports.

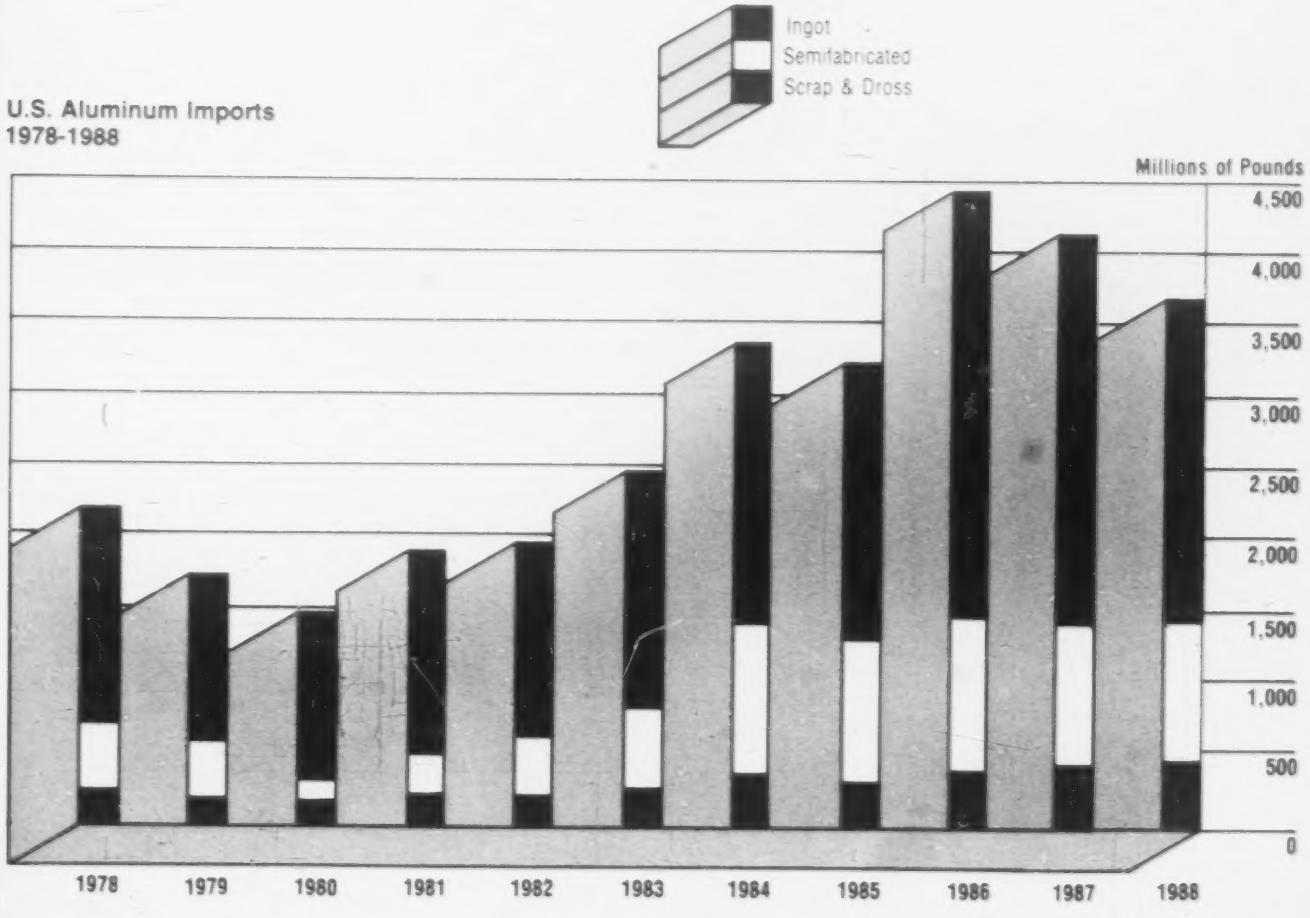
Semifabricated aluminum products also decreased 3.5 percent to 970 million pounds. Canada led the list of over 70 countries exporting semifabricated products to the U.S. with a total of 271 million pounds or 27.9 percent of total semifabricated products imports. Aluminum sheet imports, at 674 million pounds, were down 2.5 percent. Canada and Japan continue to be the largest source at 35.9 percent and 12.3 percent of the total respectively.

1988 scrap imports increased 8.7 percent to 457 million pounds from a 1987 level of 421 million pounds.

Imported semifabricated products continued a 5.5 percent penetration of the U.S. market.

The graph below illustrates the trend of U.S. aluminum imports in the years 1978-1988. In addition to showing the imports of ingot, scrap, and dross and skimmings, the upper half of the table on pages 36 and 37 shows in detail the categories of imports of semifabricated products for the years 1978-1988. Imports of aluminum by country for the year 1988 are shown on pages 38 and 39.

U.S. Aluminum Imports
1978-1988



Source: the Aluminum Association

U.S. Exports

U.S. EXPORTS JUMP 35.7 PERCENT

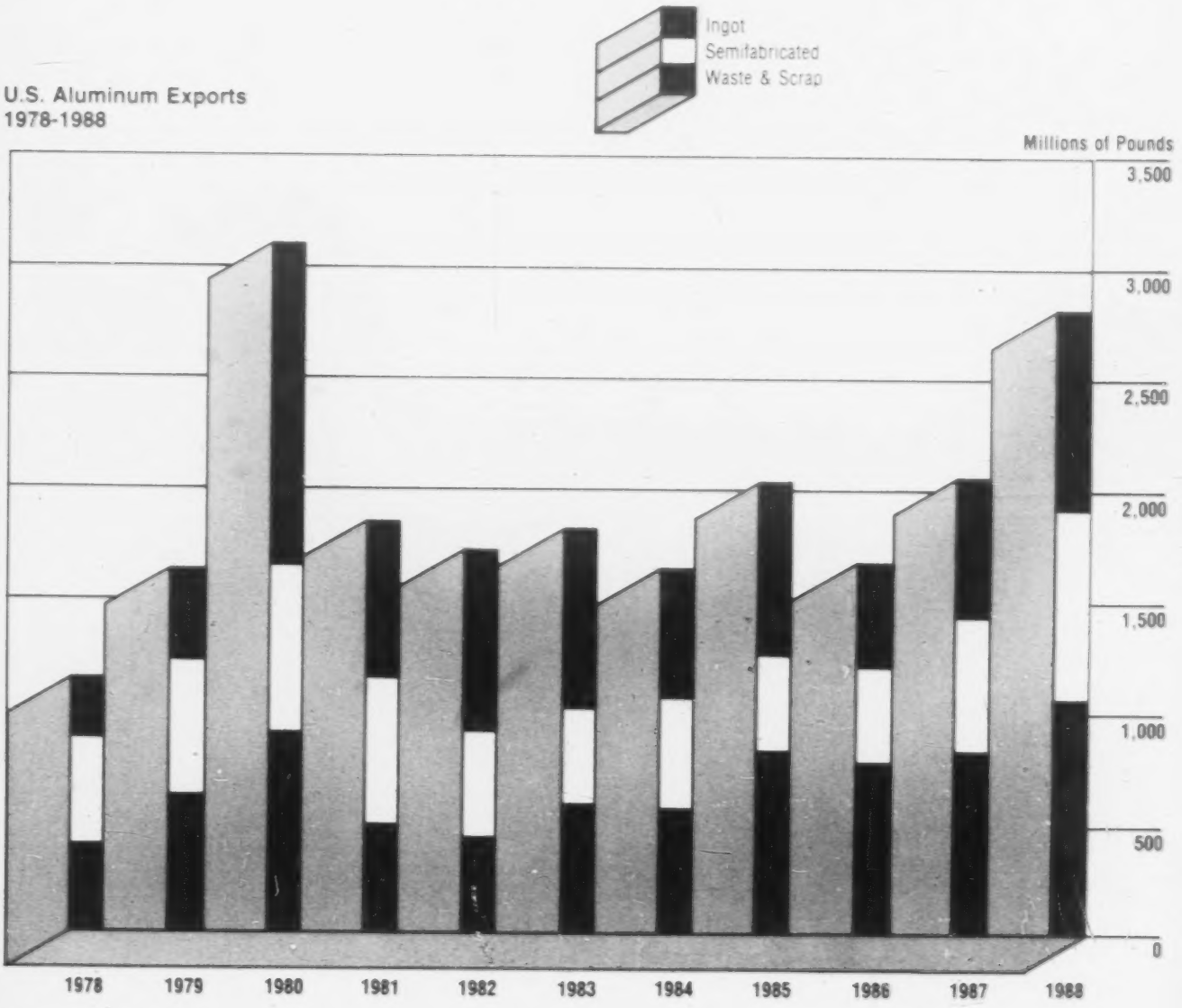
Total aluminum exports during 1988 were 2,806 million pounds, up 35.7 percent from 1987. Ingot exports rose 42.3 percent to 882 million pounds from a 1987 level of 620 million pounds. Semifabricated exports increased 34.0 percent from 636 million pounds in 1987 to 852 million pounds in 1988. Exports of scrap rose from 812 million pounds in 1987 to 1,073 million pounds in 1988, about 32.1 percent.

Of the 110 countries receiving aluminum from the U.S. in 1988, Japan received 46.2 percent or 1,296 million pounds, (668 ingot, 593 scrap and 35 semifabricated). Exports to Canada were 625 million pounds of which 492 million pounds were semifabricated products and exports to Taiwan were 181 million pounds.

DESCRIPTION:

The graph below illustrates the trend of U.S. aluminum exports in the years 1978-1988. In addition to showing the exports of ingot and scrap, the lower portion of the table on pages 36 and 37 shows the detail of exports of semifabricated products for the years 1978-1988. Exports of aluminum by country for 1988 are shown on pages 40 and 41.

U.S. Aluminum Exports 1978-1988



Source: the Aluminum Association

United States Imports and Exports

United States Imports and Exports 1978-1988

Thousands of pounds

PRODUCT	1988	1987	1986	1985	1984
Total Imports	3,691,740	4,171,462	4,426,199	3,223,576	3,353,255
TOTAL INGOT & SEMIFABRICATED	3,234,635	3,750,942	4,062,513	2,935,770	3,034,098
INGOT	2,264,691	2,745,882	2,973,633	1,915,099	1,944,381
SEMIFABRICATED: TOTAL	969,944	1,005,060	1,088,880	1,020,671	1,089,717
Sheet & plate: Total	732,709	765,311	836,049	770,093	884,498
Circles & disks	31,733	35,424	32,059	25,936	29,144
Other	700,976	729,887	803,990	744,157	855,354
Foil: Total	72,881	64,255	60,285	57,176	54,005
Over .00035"	42,063	39,491	33,218	37,733	27,045
Not over .00035"	27,832	21,853	24,113	17,891	23,631
Capacitor	2,985	2,910	2,954	1,552	3,329
Rod & bar	98,398	117,314	128,922	128,703	82,269
Wire	17,489	11,545	14,487	21,105	26,966
Cable	7,998	5,594	4,930	4,472	5,337
Angles, shapes, etc.	20,185	18,687	18,459	16,312	12,690
Pipe & tube	8,465	10,270	13,452	7,381	8,981
Powder & paste	11,819	12,084	12,296	15,430	14,971
SCRAP	442,017	415,818	357,847	281,091	303,522
DROSS & SKIMMINGS	15,087	4,703	5,839	6,715	15,634
Total Exports	2,806,348	2,067,956	1,676,082	2,030,140	1,64[illegible]9
TOTAL INGOT & SEMIFABRICATED	1,733,545	1,255,570	910,790	1,204,187	1,076,484
INGOT	881,976	619,859	462,068	765,648	572,316
SEMIFABRICATED: TOTAL	851,569	635,712	448,722	438,539	504,169
Sheet & plate	685,398	502,877	359,818	329,311	402,992
Foil	34,421	32,003	13,256	12,031	11,917
Rod & bar	24,447	23,005	21,262	22,853	22,133
Wire, bare	10,731	10,141	6,755	8,932	6,162
Other conductor	4,471	1,808	1,139	5,704	5,699
Angles, shapes, etc.	25,811	28,406	15,541	11,686	11,137
Pipe & tube: Total	17,016	14,783	9,736	10,389	10,492
Electric conduit	2,814	3,140	2,845	2,828	1,335
Other	14,202	11,643	6,891	7,561	9,157
Powder	11,878	7,471	6,000	6,278	8,086
Castings	29,787	7,959	9,780	20,190	21,488
Forgings	7,610	7,258	5,435	7,166	4,064
SCRAP	1,072,803	812,385	765,292	825,953	569,685
Net Imports*	885,392	2,103,506	2,750,117	1,931,436	1,721,263

Detail may not add to totals due to rounding
** Imports less exports*

NOTE: Prior to 1978, consult the Aluminum Statistical Review—Historical Supplement

SOURCE: U.S. Department of Commerce, Bureau of The Census

1983	1982	1981	1980	1979	1978
2.465.217	1.966.647	1.894.847	1.453.529	1.714.794	2.194.902
2.255.700	1.814.325	1.725.220	1.329.404	1.567.857	2.000.058
1.637.353	1.358.751	1.421.311	1.161.326	1.141.517	1.515.576
618.347	455.574	303.909	168.076	426.339	484.482
536.059	414.819	247.139	126.117	357.285	433.684
19.131	16.404	11.673	7.757	21.529	20.473
516.929	398.415	235.466	118.360	355.756	413.211
29.238	19.328	13.430	9.099	17.925	21.451
12.345	8.749	4.791	3.532	6.020	7.489
15.226	8.708	6.608	4.116	10.036	12.626
1.666	1.870	2.031	1.452	1.870	1.336
27.435	10.057	34.238	16.343	37.959	22.133
6.444	3.202	3.220	2.256	6.902	3.840
2.021	101	8	144	146	77
3.478	1.272	1.320	1.206	1.664	1.793
3.178	1.279	1.167	682	1.098	868
10.503	5.515	3.388	12.226	3.361	637
195.049	148.575	163.988	119.603	136.632	184.305
14.469	3.647	5.639	4.522	10.305	10.539
1.819.397	1.723.285	1.852.324	3.082.645	1.537.086	1.136.424
1.240.875	1.294.687	1.370.001	2.193.283	1.022.924	747.409
795.216	802.348	688.321	1.429.813	401.300	253.234
445.659	492.339	681.680	763.470	621.625	494.174
318.667	323.074	411.385	425.792	404.509	291.764
10.952	12.933	21.338	37.911	20.566	11.902
24.374	51.980	102.463	136.736	61.510	59.672
9.972	11.791	24.653	57.737	30.129	23.906
35.845	46.953	70.324	29.031	30.600	56.121
10.310	9.298	8.507	25.528	22.402	17.110
9.480	13.157	15.216	16.500	16.178	19.115
1.730	3.218	3.137	1.569	1.901	3.493
7.751	9.939	12.079	14.931	14.277	15.622
5.075	6.082	6.769	16.047	14.356	14.584
18.199	14.359	17.860	14.992	17.840	na
2.785	2.711	3.165	3.195	3.526	na
578.522	428.598	482.323	889.363	514.162	389.015
645.820	243.362	42.523	1.629.116	77.708	1.058.478

United States Imports by Product and Country

United States Imports by Product and Country—1988

Thousands of Pounds

Country	Total	Ingot	Scrap Dross and Skimmings	Semi-fabricated Products	Sheet	Plate	Circles & Discs
TOTAL ALL COUNTRIES	3,691,740	2,264,691	457,105	969,944	674,367	26,609	31,733
AFRICA	138,168	114,618	—	23,550	15,958	643	108
Egypt	1,774	24	—	1,750	1,711	—	40
Ghana	113,022	111,428	—	1,594	1,594	—	—
South Africa, Rep	23,019	3,125	—	19,894	12,376	643	68
Other	352	41	—	311	277	—	—
NORTH AMERICA	2,335,080	1,752,205	311,781	271,094	242,174	604	3,434
Canada	2,335,080	1,752,205	311,781	271,094	242,174	604	3,434
LATIN AMERICA	527,913	285,914	77,192	164,807	51,734	564	6,715
Argentina	77,863	55,309	—	22,553	12,361	81	334
Brazil	133,591	96,760	115	36,716	18,180	36	3,346
Jamaica	2,772	460	2,312	—	—	—	—
Mexico	66,814	15,619	37,876	13,318	4,227	—	2,236
Panama	9,555	767	8,746	43	—	—	—
Surinam	4,771	112	4,660	—	—	—	—
Venezuela	227,226	116,468	19,278	91,480	16,868	446	799
Other	5,321	418	4,207	696	97	—	—
EUROPE	363,152	16,677	25,314	321,160	209,328	24,305	12,678
Belgium	75,486	195	552	74,738	63,175	337	8,228
France	61,178	286	1,052	59,839	38,384	17,244	388
Germany, Fed. Rep.	74,339	2,709	7,658	63,971	23,289	896	708
Greece	7,371	424	—	6,947	5,064	32	935
Italy	6,704	33	175	6,496	2,547	125	87
Netherlands	31,863	4,777	7,107	19,979	19,522	1	215
Norway	7,925	1,110	—	6,815	6,814	—	—
Spain	7,536	238	—	7,298	5,989	9	542
Switzerland	5,953	1,448	—	4,506	624	70	742
Turkey	11,592	—	—	11,592	8,273	—	—
United Kingdom	31,110	4,410	8,720	17,980	6,408	5,583	7
Yugoslavia	32,360	951	—	31,410	21,726	—	790
Other	9,736	96	50	9,589	7,463	9	38
EAST ASIA	111,529	1,773	1,010	108,746	83,499	492	8,496
Hong Kong	7,248	500	247	6,501	363	38	5,710
Japan	100,296	1,230	602	98,464	82,850	430	2,785
Korean Republic	691	1	—	689	113	24	—
Taiwan	3,294	42	161	3,092	172	*	1
SOUTH ASIA	95,835	48,668	168	46,999	42,336	*	—
Bahrain	48,050	4,292	—	43,758	39,891	—	—
Israel	2,813	20	168	2,626	2,013	—	—
Saudi Arabia	2,168	2,168	—	—	—	—	—
Singapore	5,604	5,600	—	4	—	—	—
United Arab Emirates	35,903	35,868	—	35	35	—	—
Other	1,297	720	—	577	396	*	—
OCEANIA	47,019	33,917	1,459	11,644	11,489	1	—
Australia	42,332	29,450	1,413	11,469	11,316	1	—
New Zealand	4,641	4,467	1	173	173	—	—
Other	46	—	45	1	—	—	—
TOTAL WESTERN WORLD	3,618,696	2,253,773	416,924	947,999	656,517	26,609	31,432
OTHER	73,044	10,918	40,181	21,945	17,851	—	301
China, Peoples Rep.	11,976	9,910	151	1,915	1,366	—	76
Hungary	13,321	90	337	12,894	9,407	—	225
USSR	37,796	588	37,208	—	—	—	—
Other	9,951	330	2,485	7,136	7,077	—	—

(*) Indicates less than 500 pounds.
Detail may not add due to rounding.

Source: U.S. Department of Commerce, Bureau of the Census.
Note: Reimports are metal exported for processing and returned for further processing (TSUSA 806.30).

Total Foil	Capacitor Foil	Foil, not Over 0.00035	Foil, over 0.00035	Rod and Bar	Wire	ACSR and Bare Cable	Angles, Shapes & Sections	Pipes, Tubes & Fittings	Powder and Paste
72,881	2,985	27,832	42,063	98,398	17,489	7,998	20,185	8,465	11,819
811	—	266	545	528	395	—	4,986	119	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
778	—	233	545	528	395	—	4,985	119	—
33	—	33	—	—	—	—	1	—	—
5,586	—	261	5,324	10,564	4,325	454	1,414	1,157	1,383
5,586	—	261	5,324	10,564	4,325	454	1,414	1,157	1,383
2,989	—	1,150	1,839	73,758	9,647	6,827	9,158	2,431	984
23	—	23	—	5,915	3,381	—	417	40	*
2,038	—	1,115	922	4,951	434	2,362	4,680	125	564
—	—	—	—	—	—	—	—	—	—
23	—	—	23	2,599	4	18	1,646	2,260	306
—	—	—	—	43	—	—	—	—	—
424	—	—	424	60,249	5,829	4,447	2,412	6	—
432	—	12	470	—	—	—	3	—	115
53,211	2,487	23,151	27,573	11,578	2,562	87	831	1,484	5,077
586	—	200	387	2,346	—	—	—	24	41
2,617	335	395	1,887	601	424	—	6	145	30
36,089	650	18,910	16,529	47	135	24	507	587	1,689
823	—	—	823	43	—	—	48	2	—
2,569	1,501	518	549	594	19	2	21	17	515
132	—	45	87	2	1	—	23	31	53
—	—	—	—	—	1	—	—	*	—
626	—	228	397	—	40	36	28	26	2
2,672	—	2,319	354	—	—	2	5	110	281
3,137	—	—	3,137	181	—	—	—	—	—
329	—	—	329	3,122	1,158	22	16	429	909
3,285	—	430	2,855	4,636	802	—	9	—	113
344	—	106	239	6	3	1	187	113	1,445
9,519	499	3,004	6,016	697	218	619	3,131	1,976	98
12	—	—	12	—	42	—	334	*	—
9,411	499	2,987	5,926	664	134	528	838	755	68
90	—	17	73	8	1	4	156	293	—
6	—	—	6	25	40	87	1,804	928	30
185	—	—	185	1,147	5	12	399	158	2,759
—	—	—	—	1,146	—	—	—	—	2,720
5	—	—	5	—	4	9	399	157	38
—	—	—	—	—	—	—	—	—	—
—	—	—	—	*	1	2	—	—	—
180	—	—	180	—	*	—	—	*	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	1	—	109	—	44
—	—	—	—	—	—	—	109	—	44
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	1	—	—	—	—
72,300	2,985	27,832	41,483	98,271	17,174	7,998	20,028	7,325	10,345
580	—	—	580	127	315	—	157	1,140	1,474
32	—	—	32	—	278	—	136	28	—
548	—	—	548	89	39	—	—	1,112	1,474
—	—	—	—	—	—	—	—	—	—
—	—	—	—	38	—	—	21	—	—

United States Exports by Product and Country

United States Exports by Product and Country—1988

Thousands of Pounds

Country	Total	Ingot	Waste & Scrap	Semi-fabricated Products	Sheet	Plate	Circles & Discs
TOTAL ALL COUNTRIES	2,806,348	881,976	1,072,803	851,569	637,225	39,880	8,293
AFRICA	2,205	168	330	1,707	278	125	3
Ghana	384	58	—	327	12	19	3
Mauritania	194	—	194	—	—	—	—
South Africa, Republ	781	12	135	633	203	57	*
Other	846	98	—	748	63	48	—
NORTH AMERICA	625,476	65,601	67,658	492,217	394,664	17,391	4,081
Bermuda	45	—	—	45	8	—	—
Canada	625,430	65,601	67,658	492,171	394,656	17,391	4,081
LATIN AMERICA	232,915	34,888	68,957	129,070	96,331	4,083	500
Brazil	6,848	554	1,645	4,649	1,779	2,221	—
Colombia	4,841	438	105	4,299	3,853	32	—
Dominican Rep	1,793	820	27	946	372	48	—
El Savador	1,040	214	—	826	341	1	—
French West Indies	1,032	4	—	1,028	411	—	—
Jamaica	1,808	12	40	1,756	731	28	320
Mexico	173,856	30,791	65,828	77,237	55,038	1,322	29
Panama	2,178	180	425	1,574	1,222	9	—
Peru	1,373	922	111	340	252	44	—
Venezuela	32,465	55	110	32,299	31,058	162	143
Other	5,681	897	667	4,116	1,273	216	8
EAST ASIA	1,646,046	708,356	818,478	121,212	92,382	5,262	2,988
Hong Kong	30,638	2,255	2,034	26,349	23,314	113	978
Japan	1,296,470	668,267	592,705	35,498	25,291	3,972	129
Korea, Rep of	140,097	22,284	78,624	39,190	25,331	1,028	1,881
Taiwan, ROC	180,840	15,550	145,116	20,174	18,447	149	*
SOUTH ASIA	79,173	26,274	10,209	42,690	24,775	1,424	192
Indonesia	2,070	—	507	1,563	204	788	—
Iraq	6,788	1,597	92	5,099	1,569	—	—
Israel	5,513	684	125	4,704	1,148	523	37
Kuwait	4,129	—	—	4,129	3,888	—	—
Saudi Arabia	20,399	—	—	20,399	16,152	7	18
Singapore	28,233	22,770	3,759	1,704	729	36	126
Thailand	5,204	718	2,508	1,977	676	3	—
Other	6,838	504	3,219	3,114	408	67	—
EUROPE	204,861	44,712	104,563	55,586	22,819	11,222	310
Belgium	22,852	11,558	9,026	2,268	684	42	1
France	33,428	387	28,249	4,792	843	1,364	5
Germany, Fed Rep	23,015	2,704	9,435	10,876	4,002	3,765	200
Greece	2,961	31	2,810	120	64	48	—
Italy	25,000	171	18,905	5,924	2,217	1,335	*
Netherlands	58,622	23,003	28,992	6,627	3,326	638	17
Portugal	1,783	1,778	—	5	1	—	—
Spain	3,459	52	728	2,768	1,569	559	—
Sweden	1,935	163	29	1,743	1,281	291	5
United Kingdom	25,927	3,067	4,393	18,466	7,839	2,836	49
Yugoslavia	2,034	951	1,048	36	5	11	—
Other	3,757	848	947	1,962	989	331	32
OCEANIA	3,702	439	488	2,775	480	315	42
Australia	3,056	438	253	2,365	450	253	29
New Zealand	406	1	235	170	20	62	12
Other	240	—	—	240	10	—	—
TOTAL WESTERN WORLD	2,796,379	880,437	1,070,684	845,257	631,730	39,822	8,116
OTHER	9,969	1,539	2,119	6,312	5,495	57	178
China, Peoples Rep	9,969	1,539	2,119	6,312	5,495	57	178

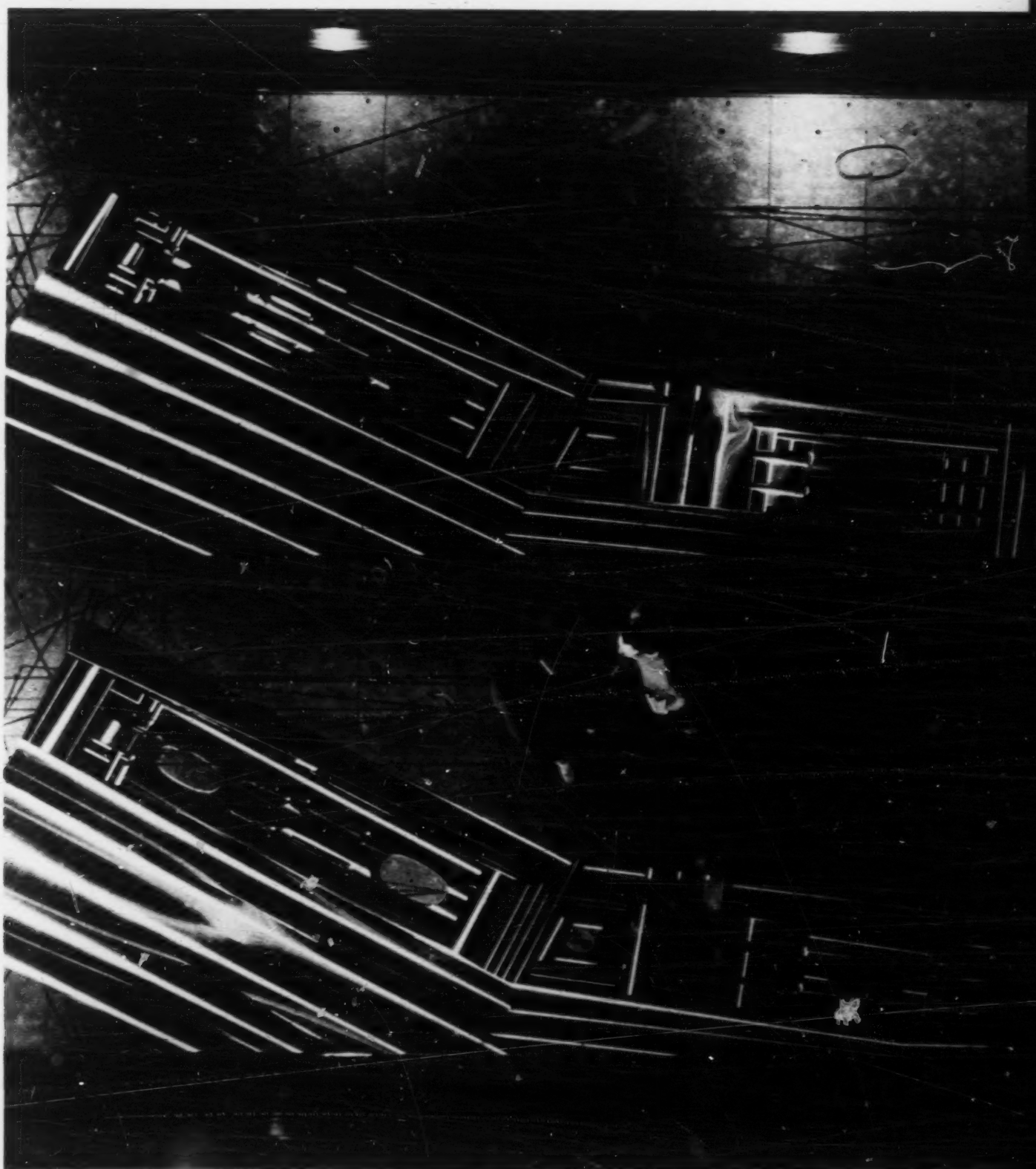
(*) Less than 500 pounds

Source: U.S. Department of Commerce, Bureau of the Census

Detail may not add due to rounding

Foil	Rod and Bar	Wire	ACSR & Bare Cable	Angles, Shapes & Sections	Pipes & Tubes	Powder & Paste	Castings	Forgings
34,421	24,447	10,731	4,471	25,811	17,016	11,878	29,787	7,610
174	252	118	—	94	151	509	1	1
6	176	5	—	81	6	18	*	—
23	40	8	—	*	1	381	—	—
146	36	105	—	14	144	191	1	1
21,185	8,748	4,098	405	2,487	6,810	5,227	23,248	3,872
4	1	15	—	3	8	1	5	—
21,180	8,747	4,083	405	2,484	6,802	5,226	23,243	3,872
2,611	3,347	4,183	3,911	2,068	6,000	2,423	3,486	127
226	23	5	—	26	43	266	18	42
18	363	10	—	*	*	19	4	—
58	80	22	24	309	34	—	—	—
30	41	392	2	—	19	*	—	—
—	—	—	—	612	—	—	5	—
170	212	22	23	2	130	118	—	—
1,168	2,183	2,892	3,734	761	5,247	1,384	3,399	81
175	33	66	—	—	68	—	—	1
21	1	4	2	—	2	2	10	—
76	305	314	*	*	23	210	6	—
668	107	456	126	358	434	424	43	3
1,629	1,525	653	29	13,116	1,052	1,703	332	541
902	73	34	17	781	73	21	44	—
311	1,114	275	—	1,998	485	1,293	266	364
236	103	199	3	9,753	358	127	8	163
180	235	145	10	583	134	262	15	14
7,082	4,637	1,127	21	722	723	377	309	1,302
258	23	15	—	5	228	38	1	3
—	2,921	609	—	—	—	—	—	—
110	917	175	—	376	21	15	109	1,274
241	—	—	—	—	—	—	—	1
3,971	11	32	—	72	58	76	*	—
208	31	17	6	153	77	96	191	25
571	614	4	2	92	6	10	1	—
1,723	120	276	13	24	334	142	7	—
1,638	5,096	491	99	6,662	1,760	1,551	2,272	1,666
157	267	29	—	183	35	273	276	320
190	251	181	25	234	110	198	1,161	230
690	1,045	90	1	303	225	349	189	16
—	2	4	—	*	—	—	*	1
28	1,446	11	7	490	14	134	180	62
91	1,236	15	—	1,146	32	5	48	72
—	*	1	—	—	—	—	3	—
7	13	2	57	159	16	128	18	240
15	15	—	—	44	37	26	24	5
374	790	95	8	4,023	1,094	347	329	680
—	—	—	—	15	—	—	—	5
86	31	63	1	63	197	89	45	35
101	830	57	6	211	475	88	110	59
62	820	40	6	28	433	80	108	56
*	10	18	*	—	38	3	3	3
38	—	—	—	183	3	6	—	—
34,421	24,435	10,728	4,471	25,359	16,971	11,878	29,758	7,568
—	12	3	—	451	45	*	29	42
—	12	3	—	451	45	*	29	42

World Aluminum Statistics



The aluminum industry is international by its very nature. From the extraction of its basic source material at bauxite sites located in a number of countries throughout the world to its fabrication and distribution in every nation on earth, the aluminum industry should be viewed in a world-wide perspective. This section attempts to provide data on two of the key aspects of world aluminum, world primary aluminum production and the apparent per capita consumption of aluminum for selected countries.

World production of primary aluminum in 1988 is estimated to have been 17,304 thousand metric tons, up 5.7 percent from 1987. World primary aluminum production is presented by country for the years 1978-1988 on page 45.

Data on the consumption of aluminum on a per capita basis are presented for 41 countries. These countries represent three-quarters of the world's production of primary aluminum. The data are presented in a uniform statistical format for the years 1978-1988. The data for supply and consumption show ingot and mill product detail for imports and exports. Midyear population figures are presented as part of the calculation of consumption on a per capita basis for each country.

World Aluminum Statistical data is presented in metric tons, with one exception: the per capita aluminum consumption summary on page 47 is expressed in pounds per person per year. Individual country data tables show per capita consumption in kilograms.

Aircraft wingskins such as these, begin as a 10,000-pound slab of aluminum plate. The plate is precision-machined into components up to 100-feet long, with tapers from 1½ inches at the base to ⅛ inch at the tip. The wingskins weigh 3,000 pounds after machining.

World Primary Aluminum Production

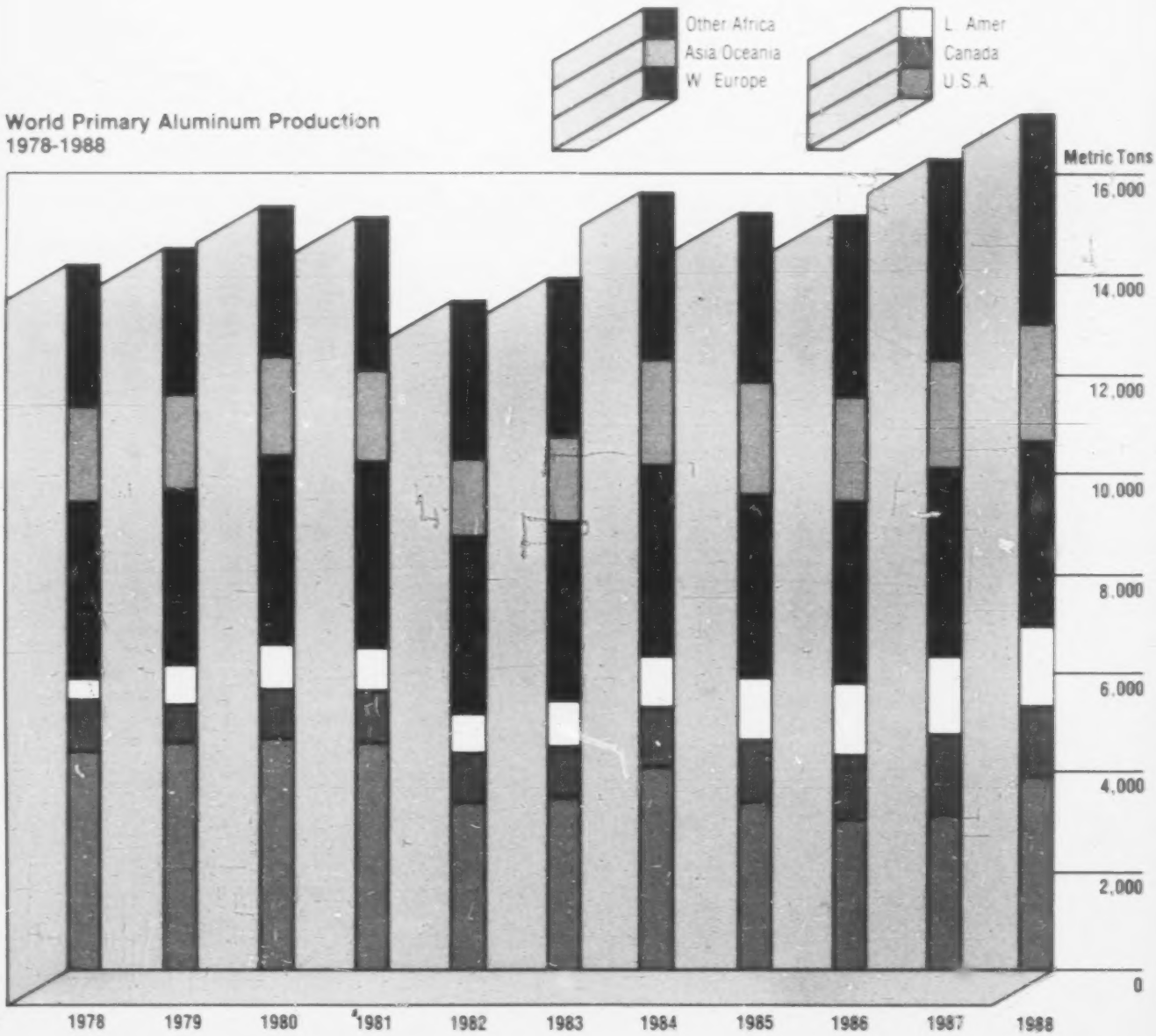
WORLD PRODUCTION UP 5.7 PERCENT

Estimated 1988 world production of primary aluminum totaled 17,304 thousand metric tons, up 5.7 percent from the revised estimate of 16,378 thousand tons in 1987 according to Bureau of Mines data.

Over the decade 1978-1988 world production increased 22.5 percent, an annual growth rate of 1.6 percent.

The United States accounted for 22.8 percent of the world's 1988 production while Europe accounted for 21.7 percent. The remaining 55.5 percent from Asia (5.6 percent), Canada (8.9 percent), South America (5.3 percent), Oceania (7.8 percent), Africa (3.1 percent), and others (21.3 percent).

World Primary Aluminum Production 1978-1988



World Primary Aluminum Production
1978-1988

Thousands of Metric Tons

Country	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
TOTAL WORLD	17,304p	16,378r	15,354r	15,398r	15,705r	13,904	13,433	15,079	15,383	14,555	14,131
AFRICA	541	572r	554r	513	410	420	500	473	437	400	342
Cameroon	72	72r	84	90	73	77	79	65	43	44	49
Egypt	179	179r	175	209	170	140	141	134	120	102	101
Ghana	118	150	125	49	—	42	174	190	188	169	112
South Africa	172	171r	170r	165	167	161	106	84	87	86	81
NORTH AMERICA	5,479	4,883r	4,392r	4,782	5,321r	4,444	4,339	5,605	5,722	5,377	5,407
Canada	1,535	1,540r	1,355r	1,282	1,222r	1,091	1,065	1,116	1,068	820	1,049
United States	3,944	3,343	3,037	3,500	4,099	3,353	3,274	4,489	4,654	4,557	4,358
LATIN AMERICA	1,521	1,511r	1,398r	1,153r	1,048r	938	795	788	821	693	408
Argentina	160	156r	148r	136r	134r	133	138	134	133	119	49
Brazil	874	843r	757r	549	455	401	299	256	261	239	186
Mexico	65	63r	40r	43	44	40	41	43	43	44	44
Suriname	5	9r	30	29	29	29	43	41	55	54	55
Venezuela	417	440r	423r	396	386	335	274	314	328	228	74
EAST ASIA	55	63r	159	245	305	269	376	820	1,174	1,089	1,129
Japan	35	41	140	227	287	256	351	771	1,091	1,011	1,058
Korea, Republic of	20	22r	19	18	18	13	15	18	18	22	20
Taiwan	—	—	—	—	—	—	10	31	64	56	51
SOUTH ASIA	912	878r	909r	903r	880	711	651	502	386	383	395
Bahrain	182	180r	178	176r	177	172	171	130	126	126	122
India	298	245r	257	260	269	204	217	213	185	211	214
Indonesia	180	216r	219	217	199	115	33	—	—	—	—
Iran	40	40	40	43	42	39	45	13	16	14	25
Turkey	57	42r	60r	54	38	30	36	40	34	32	33
United Arab Emirates	155	155	155	153	155	151	149	106	25	—	—
EUROPE	3,762	3,715r	3,682r	3,630r	3,776	3,581	3,521	3,723	3,747	3,584	3,507
Austria	96	93	93	94	96	94	94	94	94	93	92
France	322	323r	322	293	342	361	390	436	432	396	391
Germany, Fed. Rep.	744	738r	765	745	777	743	723	729	731	741	740
Greece	127	127r	126	125	136	136	135	146	146	141	144
Iceland	85	85	76	73	80	76	75	74	73	73	73
Italy	227	233r	243	224r	230	196	233	274	271	269	270
Netherlands	278	276r	266	251	249	235	251	262	259	258	261
Norway	840	806r	726r	743r	765	713	638	634	653	664	639
Spain	323	341r	350	370	381	358	367	397	386	259	212
Sweden	96	82r	77	84	83	82	79	83	82	82	82
Switzerland	72	73r	80	73	79	76	75	82	86	83	80
United Kingdom	300	294r	276	275	288	253	241	339	374	359	347
Yugoslavia	250	244	282	280	270	258	220	173	161	168	176
OCEANIA	1,350	1,253r	1,055	1,092	1,001	697	544	533	458	424	415
Australia	1,150	1,004	882	851	758	478	381	379	303	269	263
New Zealand	200	249r	173	241	243	219	163	154	155	154	152
OTHER	3,684	3,503r	3,205r	3,080	2,964	2,844	2,707	2,635	2,638	2,605	2,529
China, P.R.[1]	600	615r	410	410	400	400	380	350	360	363	363
Czechoslovakia[1][2]	26	32r	33	32	32	36	34	33	38	37	37
German D.R.[1]	65	62r	61r	60	58	57	58	60	60	60	65
Hungary	75	76r	74	74	74	74	74	74	73	72	72
Korea, Peop. Rep.	10	10	10	10	10	10	10	10	10	10	10
Poland[3]	48	48	48	47	46	44	43	66	95	96	100
Romania	260	260r	269	247	244	223	208	242	241	217	213
U.S.S.R.[1]	2,400	2,400	2,300	2,200	2,100	2,000	1,900	1,800	1,760	1,751	1,669

Detail may not add due to rounding.

(1) Estimated by the Bureau of Mines, U.S. Department of Interior.
(2) Includes secondary unalloyed ingot.
(3) Includes primary alloyed ingot.
r-revised.
p-preliminary.

SOURCE: Bureau of Mines, U.S. Department of Interior.
CONVERSION FACTOR: One metric ton = 2,204.6 pounds.

Aluminum Supply and Apparent Consumption—Selected Countries

PER CAPITA CONSUMPTION UP 10.4 PERCENT

Per capita aluminum consumption for those countries which provided both 1987 and 1988 data, increased an average of 10.4 percent in 1988 as compared with 1987. Of the 30 countries which responded to the 1988 survey, 17 (57%) showed increased usage in 1988 while the remainder, 13 (43%) indicated decreased or steady usage.

In 1988, the United States was the third largest user of aluminum on a per capita basis (60.6 pounds; 27.5 Kg.). Other large users were Japan, the largest, (61.7 pounds; 28.0 Kg.), West Germany (61.1 pounds; 27.7 Kg.), and Canada (59.1 pounds; 26.8 Kg.).

Per Capita Aluminum Consumption Formula

1 + Primary aluminum production
2 + Government stockpile adjustment
3 + Imports of ingot
4 + Imports of mill products (aluminum alloy weight)
5 + Recovery of secondary aluminum alloys (from domestic and imported scrap)
6 − Exports of ingot
7 − Exports of mill products (aluminum alloy weight)
8 = Apparent aluminum consumption
9 + Beginning of year inventory
10 − End of year inventory
11 = Inventory change
12 = Aluminum consumption (with inventory change)
13 ÷ Mid-year population
14 = Per capita consumption (Kg.) (without inventory change)
15 = Per capita consumption (Kg.) (with inventory change)

DESCRIPTION

The Aluminum Association, in conjunction with industry associations in foreign countries, and, in some instances appropriate government agencies, is developing a joint program to compile uniform statistical data showing total supply and apparent consumption. Total supply for an individual country consists of primary production, imports, and secondary recovery. Apparent consumption is equal to the sum of these sources of total supply less exports and inventory changes. Production of primary aluminum for the foreign countries is tabulated for the years 1978-1988 on page 45.

The tables on pages 48-61 show total supply and apparent consumption corresponding to the above format for the following countries:

Argentina
Australia
Austria
Bahrain
Belgium
Brazil
Cameroon
Canada
Denmark
Finland
France
Germany, F.R.
Greece
Iceland
Indonesia
Iran
Ireland
Israel
Italy
Japan
Korea, Rep.
Mexico
Netherlands
New Zealand
Nicaragua
Norway
Panama
Philippines
Portugal
El Salvador
Saudi Arabia
Singapore
South Africa
Spain
Sweden
Switzerland
Taiwan
Turkey
United Kingdom
United States
Venezuela

The format for compiling total supply and apparent consumption data is shown below.

In order to develop a basis for showing relative aluminum usage by country and to provide a measure of trend over time, per capita consumption data have been calculated for each country. For this purpose mid-year population estimates have been used. It is important to emphasize that these estimates are not the only way of measuring relative consumption data among countries. Obviously, the composition of a country's population, standard of living, industrialization, climate, availability and economies of other materials, and a number of other important considerations affect the per capita use of aluminum. The formula is used because it is simple and permits the Association to compile data for more countries, with their cooperation, than can be compiled using more detailed information.

When data for individual lines are not available or are not appropriate, they are omitted. Inventory changes cover suppliers' inventories only. Consumption estimates exclude changes in customer inventories.

The components of the formula are numbered and cross referenced to the country details on pages 41-61.

A summary of per capita consumption covering the years 1978-1988 for each of the countries is shown on page 47 in pounds.

Conversion factor: One metric ton = 2,204.6 pounds.

Per Capita Aluminum Consumption of Selected Countries 1978-1988

Pounds per person per year (a)

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
Argentina*	4.9	5.5	4.6	2.6	5.5	5.3	4.8	4.0	4.8	6.9	4.9
Australia*	44.8	41.4	38.1	39.8	36.6	33.8	36.7	41.4	38.9	37.6	32.5
Austria*	39.9	31.3	32.2	27.7	28.9	25.5	23.8	26.5	27.6	25.0	23.7
Bahrain*	—	—	9.7	23.8	22.0	18.9	10.8	13.2	20.3	27.5	15.1
Belgium	22.9	17.0	22.3	21.2	27.1	21.0	20.6	16.1	20.6	20.3	19.6
Brazil*	5.7	6.4	6.8	5.9	4.8	4.9	5.5	5.3	6.6	6.4	5.8
Cameroon	2.6	3.7r	4.6	4.8	4.4	4.5	3.6	3.5	6.4	4.7	3.9
Canada*	59.1	48.7	42.3	45.0	43.7	32.2	37.3	36.1	35.5	37.1	35.7
Denmark	22.9	19.0	20.9	19.4	20.1	30.2	30.5	27.3	27.6	31.8	32.2
Finland	8.6	11.7	13.0	7.5	7.6	11.2	14.6	14.1	14.3	16.5	12.0
France*	35.3	31.5	31.1	28.2	27.6	28.9	29.1	27.8	31.5	28.1	25.4
Germany, F.R.*	61.1	57.8	56.2	54.7	49.1	48.1	43.0	44.8	48.6	48.6	42.9
Greece	na	1.3r	12.3	8.5	11.4	10.6	10.6	13.0	13.0	9.4	8.7
Iceland	27.1	23.1	18.1	17.3	19.3	27.8	23.4	34.1	21.9	20.4	15.9
Ireland	9.7	11.7	11.0	10.0	11.3	8.3	8.8	9.1	9.6	10.9	10.6
Italy*	39.7	36.2	32.2	30.1	29.6	29.3	27.1	27.6	32.4	28.0	24.7
Japan*	61.7	47.8r	44.5r	47.4r	41.2r	44.3r	41.0r	37.7r	43.0r	43.0r	40.8r
Korea, Republic of	na	na	na	9.9	9.9r	9.3	7.5	6.8	4.2	7.1	7.1
Mexico*	2.6	2.9r	2.9r	4.4	3.5	2.5	4.9	6.5	5.6	4.9	4.1
The Netherlands*	38.6	32.4r	33.1	30.2	27.6	23.6	24.9	20.1	27.2	26.0	23.0*
New Zealand*	22.7	26.2	22.5	22.2	20.8	18.4	15.4	20.5	17.2	19.0	17.1
Norway*	46.7	32.0	40.6	45.0	48.1	29.4	49.8	41.7	50.0	53.1	46.1
Panama	3.7	3.7	1.8	1.7	4.9	3.2	1.8	2.2	2.0	2.0	1.5
Philippines, Rep. of	na	0.4	0.2	0.2	0.4	0.7	0.9	0.4	0.8	1.5	0.8
Portugal	na	na	10.0	8.4	6.8	9.9	11.0	11.0	8.5	7.6	8.6
El Salvador	0.6	0.7	0.4	0.1	0.5	1.2	0.5	0.6	0.4	1.0	1.0
Saudi Arabia	18.7	16.1r	13.0	30.1	19.8	46.1	9.4	25.1	24.8	19.0	17.5
Singapore	45.9	49.8	25.6	25.8	26.1	22.9	23.0	25.3	20.1	20.4	15.0
South Africa*	11.5	9.5r	9.3	9.3	9.4	9.2	9.0	10.0	9.9	5.8	5.1
Spain*	15.2	14.8r	13.0r	9.9	9.7	11.8	12.1	11.3	14.2	12.8	12.5
Sweden*	50.0	47.2	45.2	42.5	43.9	41.1	38.8	34.2	34.4	36.9	32.6
Switzerland*	41.7	41.7	44.8	42.2	40.1	33.0	33.3	34.0	37.7	31.4	29.8
Taiwan, Republic of China*	na	na	na	17.1	12.6	19.6	13.7	14.5	13.4	15.0	12.8
Turkey	4.9	7.3	7.3	6.6	5.5	4.6	5.3	8.8	2.4	2.4	2.4
United Kingdom	25.1	24.0	22.7	22.1	23.6	21.9	20.3	20.7	21.6	22.1	26.6
United States*	60.6	61.5r	58.0	58.7	59.3	57.7	51.0	55.2	56.8	65.8	65.9
Venezuela*	na	na	14.8	10.4	13.2	14.1	13.9	9.0	15.2	14.8	11.3

*Adjusted for inventory change
r — Revised
na — Not available at publication time
e — Estimated

(a)—See individual country tables for kilogram measures.

Per Capita Aluminum Consumption

ARGENTINA, REPUBLIC OF

Thousands of Metric Tons

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1 + Primary Aluminum Production	155.1	152.5r	147.6	136.2	133.7	132.8	137.5	134.1	133.1	118.4	49.4
3 + Imports of Ingot	—	—	—	—	—	—	—	—	—	—	—
4 + Imports of Mill Products	2.3	3.5r	1.4	1.0	0.9	1.1	10.5	5.1	4.0	1.4	0.5
5 + Recovery of Secondary	7.1	7.7r	6.5	3.7	7.5	7.0	6.0	5.0	7.0	8.0	8.0
6 – Exports of Ingot	10.9	13.8r	34.8	66.1	30.1	43.8	67.6	88.2	63.4	31.3	7.5
7 – Exports of Mill Products	78.3	73.3	60.6	45.1	29.7	16.5	16.4	11.3	8.9	4.1	10.2
8 = Apparent Aluminum Consumption	75.3	76.6r	60.2	29.7	82.3	80.6	70.0	44.7	71.8	92.4	40.3
11 + Inventory Change	+ 4.1	– 0.6	– 5.5	– 7.1	6.5	8.6	7.0	– 6.8	10.0	6.0	– 18.6
12 = Aluminum Consumption	71.2	77.2	65.7	36.8	75.8	72.0	63.0	51.5	61.8	86.4	58.9
13 Mid-Year Population (Millions)	31.7	31.2r	31.0	30.6	30.1	29.6	29.2	28.7	28.2	27.8	26.5
14 = Per Capita Consumption (kg)[1]	2.4	2.5	1.9	1.0	2.7	2.7	2.4	1.6	2.5	3.3	1.5
15 = Per Capita Consumption (kg)[2]	2.2	2.5	2.1	1.2	2.5	2.4	2.2	1.8	2.2	3.1	2.2

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
r—Revised

Source: Ministerio de Defensa and Aluminio Argentino, SAIC

AUSTRALIA

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1 + Primary Aluminum Production	1,141.3	1,024.2	875.0	851.2	756.7	474.1	380.2	378.7	302.5	273.2	266.4
3 + Imports of Ingot	2.3	—	0.1	0.6	0.5	4.5	13.2	8.4	8.0	3.5	0.2
4 + Imports of Mill Products	14.5	12.4	8.4	10.2	8.7	6.4	13.1	14.4	10.7	8.1	3.6
5 + Recovery of Secondary	46.5	39.0	30.0	45.6	43.3	37.7	40.7	44.4	38.0	30.5	24.4
6 – Exports of Ingot	812.2	737.0	588.0	577.2	477.3	215.8	185.6	122.6	35.6	63.1	76.3
7 – Exports of Mill Products	54.1	57.9	56.4	54.0	58.8	49.5	32.6	25.4	18.4	16.1	4.8
8 = Apparent Aluminum Consumption	338.3	280.7	269.1	276.4	273.1	257.4	229.1	297.9	305.3	236.1	213.6
11 + Inventory Change	+ 3.3	– 24.3	– 6.5	– 8.5	14.6	21.7	– 23.7	– 19.0	47.4	– 9.7	3.8
12 = Aluminum Consumption	335.0	305.0	275.6	284.9	258.5	235.8	252.7	316.9	257.9	245.8	209.7
13 Mid-Year Population (Millions)	16.5	16.2	16.0	15.8	15.5	15.4	15.2	14.9	14.6	14.4	14.2
14 = Per Capita Consumption (kg)[1]	20.5	17.3	16.8	17.5	17.6	16.7	15.1	20.0	20.9	16.4	15.0
15 = Per Capita Consumption (kg)[2]	20.3	18.8	17.3	18.1	16.6	15.3	16.6	21.3	17.7	17.1	14.8

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

Source: Aluminium Development Council—Australia

AUSTRIA

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1 + Primary Aluminum Production	95.5	93.4	92.5	94.1	95.8	94.2	93.9	94.2	94.4	92.7	91.3
3 + Imports of Ingot	76.4	61.3	78.9	65.4	61.4	40.2	38.7	33.2	35.2	30.7	14.9
4 + Imports of Mill Products	52.0	63.6	54.8	54.9	52.3	48.5	42.4	37.6	39.2	36.8	29.9
5 + Recovery of Secondary	29.4	27.2	24.7	21.1	21.6	16.1	14.2	13.8	14.3	8.7	9.3
6 – Exports of Ingot	21.0	33.7	28.3	26.7	25.5	25.6	25.6	25.0	9.8	10.3	11.7
7 – Exports of Mill Products	99.9	116.9	105.3	110.1	100.0	101.4	78.6	69.1	66.4	74.3	67.7
8 = Apparent Aluminum Consumption	132.4	94.9	117.3	98.7	105.6	72.0	85.0	84.6	107.0	84.3	66.0
11 + Inventory Change	– 5.4	12.5	7.1	4.5	7.0	– 14.7	3.8	– 5.4	13.0	– 0.6	– 14.6
12 = Aluminum Consumption	137.8	107.4	110.2	94.2	98.6	86.7	81.2	90.0	94.0	84.9	80.6
13 Mid-Year Population (Millions)	7.6	7.6	7.6	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
14 = Per Capita Consumption (kg)[1]	17.4	12.5	15.5	13.2	14.1	9.6	11.3	11.3	14.3	11.2	8.8
15 = Per Capita Consumption (kg)[2]	18.1	14.2	14.6	12.6	13.1	11.6	10.8	12.0	12.5	11.3	10.8

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

Source: Fachverband der Metallindustrie Österreichs

Detail may not add to totals due to rounding.

BAHRAIN

		1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1.	+ Primary Aluminum Production	183.0	182.0	176.6	175.5	175.8	171.7	171.0	142.0	126.1	127.1	123.1
5.	+ Recovery of Secondary	2.0	—	1.5	—	—	—	1.5	—	—	—	—
6.	– Exports of Ingot	114.0	129.0	199.9	133.0	168.3	190.5	157.0	83.0	78.0	131.1	134.1
7.	– Exports of Mill Products	42.0	33.0	25.0e	15.2	13.2	18.0	12.0	15.0	17.0	6.0	5.0
8.	= Apparent Aluminum Consumption	29.0	20.0	46.8e	27.3	–5.7	–36.8	3.5	44.0	31.1	–10.0	–16.0
9.	+ Beginning Inventory	13.0	16.0	64.7	41.9	51.6	91.7	90.0	48.0	20.0	34.0	52.1
10.	– Ending Inventory	11.0	13.0	16.1	64.7	41.9	51.6	91.7	90.0	48.0	20.0	34.0
11.	= Inventory Change	2.0	–3.0	–48.6	22.8	–9.7	–40.1	1.7	42.0	27.9	–14.0	–18.1
12.	= Aluminum Consumption	31.0	23.0	1.8e	4.5	4.0	3.3	1.8	2.0	3.2	4.0	2.1
13.	Mid-Year Population (Millions)	0.421	0.416	0.411	0.400	0.400	0.384	0.371	0.351	0.335	0.320	0.305
14.	= Per Capita Consumption (kg)[1]	68.9	48.1	–113.8	67.3	–14.3	–95.8	9.4	125.4	92.9	–31.2	–52.3
15.	= Per Capita Consumption (kg)[2]	73.6	55.3	4.4e	11.3	10.0	8.6	4.9	5.7	9.5	12.5	6.8

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
e—Estimated

Source: Aluminium Bahrain B.S.C.

BELGIUM

		1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
3.	+ Imports of Ingot	355.1	315.5	307.4	307.9	311.0	289.7	267.4	245.0	252.5	252.8	266.8
4.	+ Imports of Mill Products	150.0	121.8	109.9	95.7	93.8	90.5	86.9	62.9	64.9	87.1	76.8
5.	+ Recovery of Secondary	—	—	—	—	—	—	—	—	—	—	1.0
6.	– Exports of Ingot	32.9	27.6	24.9	23.0	10.3	17.3	13.8	29.7	19.6	10.8	10.2
7.	– Exports of Mill Products	369.1	333.5	289.4	286.5	280.6	269.1	248.5	206.3	205.1	245.4	232.3
8.	= Apparent Aluminum Consumption	103.1	76.2	103.0	94.1	113.9	93.8	92.0	71.9	92.7	83.7	102.2
13.	Mid-Year Population (Millions)	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.8	9.9	9.8	9.8
14.	= Per Capita Consumption (kg)[1]	10.4	7.7	10.4	9.5	11.6	9.5	9.3	7.3	9.4	8.5	10.4

NOTES:
(1) Without Inventory Change

Source: Federation des Enterprises de Metaux Non Ferreux

BRAZIL

		1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1.	+ Primary Aluminum Production	873.5	843.5	757.3	549.4	455.0	400.7	299.0	256.4	260.6	238.1	186.4
3.	+ Imports of Ingot	0.1	2.3	1.4r	2.6	4.6	3.0	10.8	28.3	46.7	51.8	60.4
4.	+ Imports of Mill Products	7.3	6.3	2.2r	3.8	5.0	2.8	3.9	8.7	22.3	27.3	14.8
5.	+ Recovery of Secondary	56.8	65.9	60.1	52.7	47.2	45.0	37.8	37.3	46.1	53.8	49.2
6.	– Exports of Ingot	514.9	430.9	323.5	179.1	148.0	116.3	6.7	2.2	—	—	—
7.	– Exports of Mill Products	41.6	26.0	33.5	36.0	57.3	53.3	11.7	18.6	11.5	8.6	3.9
8.	= Apparent Aluminum Consumption	391.2	461.1	464.5	393.4	306.5	281.9	333.1	309.9	364.2	362.4	306.9
11.	+ Inventory Change	+8.6	37.4	36.0	37.6	20.1	–7.9	21.2	20.8	10.9	24.2	6.4
12.	= Aluminum Consumption	382.6	411.0	428.5	355.8	286.4	289.8	311.9	289.1	353.3	338.2	300.5
13.	Mid-Year Population (Millions)	144.4	141.4	138.4	135.6	132.6	129.6	126.8	124.0	119.1	116.3	113.5
14.	= Per Capita Consumption (kg)[1]	2.7	3.3	3.3	2.9	2.3	2.2	2.6	2.5	3.1	3.1	2.7
15.	= Per Capita Consumption (kg)[2]	2.6	2.9	3.1	2.6	2.2	2.2	2.5	2.3	3.0	2.9	2.6

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

Source: Associacao Brasileira do Aluminio

Per Capita Aluminum Consumption—Continued

CAMEROON

Thousands of Metric Tons

		1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1	+ Primary Aluminum Production	80.0	21.5	81.1	81.6	73.1	77.4	78.9	65.4	43.0	44.6	41.3
3	+ Imports of Ingot	—	—	—	—	—	—	—	—	—	0.8	0.1
4	+ Imports of Mill Products	—	—	—	0.1	—	—	0.9	0.9	0.9	0.4	0.3
6	– Exports of Ingot	63.1	47.4	53.0	51.9	49.4	51.1	55.4	44.5	13.3	20.2	15.3
7	– Exports of Mill Products	6.0	5.8	6.6	8.9	6.7	9.8	10.7	7.0	5.1	10.0	10.1
8	= Apparent Aluminum Consumption	10.9	18.3	21.3	20.9	17.0	16.5	13.7	14.8	25.5	15.6	16.2
11	+ Inventory Change	– 1.8	– 0.5	0.3	0.2	– 1.1	8.6	– 0.5	1.5	1.8	– 1.7	2.3
12	= Aluminum Consumption	12.7	18.8	21.0	20.7	18.1	7.9	14.2	13.2	23.7	17.3	14.0
13	Mid-Year Population (Millions)	10.9	10.9r	10.2	9.61	9.16	8.87	8.65	8.50	8.25	8.06	7.91
14	= Per Capita Consumption (kg)(1)	1.0	1.7r	2.1	2.2	1.9	1.9	1.6	1.7	3.1	1.9	2.1
15	= Per Capita Consumption (kg)(2)	1.2	1.7r	2.1	2.2	2.0	0.9	1.6	1.6	2.9	2.1	1.8

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
r—Revised

Source: Societe de Vente de l'Aluminium Pechiney

CANADA

		1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1	+ Primary Aluminum Production	1,535.0	1,547.0	1,355.0	1,282.0	1,223.0	1,094.0	1,070.0	1,118.1	1,074.0	863.3	1,050.5
3	+ Imports of Ingot	59.0	53.0	65.0	60.0	39.0	31.0	24.0	14.3	9.9	24.0	11.5
4	+ Imports of Mill Products	311.0	214.0	179.0	174.0	188.0	122.0	110.0	125.1	118.1	144.2	107.7
5	+ Recovery of Secondary	86.0	80.0	78.0	74.0	70.0	56.0	50.0	65.0	65.1	84.5	74.8
6	– Exports of Ingot	1,155.0	1,172.0	1,164.0	1,051.0	834.0	925.0	896.0	725.5	784.7	550.5	862.6
7	– Exports of Mill Products	143.0	155.0	82.0	78.0	100.0	65.0	42.0	40.5	39.6	36.1	39.8
8	= Apparent Aluminum Consumption	693.0	567.0	431.0	461.0	586.0	313.0	316.0	556.6	442.8	529.3	342.2
11	+ Inventory Change	– 2.0	+ 1.0	– 57.0	– 54.0	92.0	– 48.0	– 99.0	160.0	57.9	130.4	– 38.2
12	= Aluminum Consumption	691.0	568.0	488.0	515.0	494.0	361.0	415.0	396.5	384.9	399.0	380.4
13	Mid-Year Population (Millions)	25.8	25.7	25.4	25.2	25.0	24.8	24.6	24.2	23.9	23.7	23.5
14	= Per Capita Consumption (kg)(1)	26.9	22.1	17.0	18.3	23.4	12.6	12.8	23.0	18.5	22.3	14.6
15	= Per Capita Consumption (kg)(2)	26.8	22.1	19.2	20.4	19.8	14.6	16.9	16.4	16.1	16.8	16.2

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

Source: Aluminum Company of Canada, Ltd.

Detail may not add to totals due to rounding.

DENMARK

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
3 + Imports of Ingot	39.2	35.0	39.6	37.6	34.1	28.0	25.1	21.2	24.2	22.5	18.8
4 + Imports of Mill Products	79.3	61.3	56.4	53.1	55.0	62.5	43.9	40.5	45.4	49.8	58.1
5 + Recovery of Secondary	—	—	na	na	na	28.0	32.3	30.3	24.9	31.1	27.7
6 – Exports of Ingot	37.6	37.8	30.8	28.8	25.5	24.0	20.1	20.1	18.9	21.5	17.2
7 – Exports of Mill Products	27.8	14.8	16.4	16.9	17.0	24.5	10.4	8.4	11.4	8.3	12.5
8 = Apparent Aluminum Consumption	53.1	43.7	48.8	45.0	46.6	70.0	70.8	63.5	64.2	73.6	74.8
13 Mid-Year Population (Millions)	5.11	5.11	5.11	5.11	5.11	5.11	5.12	5.12	5.12	5.12	5.10
14 = Per Capita Consumption (kg)[1]	10.4	8.6	9.5	8.8	9.1	13.7	13.8	12.4	12.5	14.4	14.7

NOTES:
(1) Without Inventory Change

Source: Danmarks Statistik

FINLAND

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
3 + Imports of Ingot	23.6	23.5	21.6	20.3	20.7	26.3	27.2	28.8	26.7	24.9	21.7
4 + Imports of Mill Products	31.8	28.8	25.0	23.1	24.5	24.0	22.4	21.9	28.8	26.8	20.3
5 + Recovery of Secondary	—	7.2	7.0	6.9	6.8	5.4	6.8	6.5	6.6	7.6	5.5
6 – Exports of Ingot	25.3	24.3	17.0	16.2	13.6	10.7	6.3	4.6	3.9	1.3	2.7
7 – Exports of Mill Products	10.9	9.3	7.5	17.5	21.5	19.7	18.1	22.0	27.1	22.3	19.0
8 = Apparent Aluminum Consumption	19.2	25.9	29.1	16.6	16.9	25.3	32.0	30.6	31.1	35.7	25.8
13 Mid-Year Population (Millions)	4.95	4.93	4.92	4.90	4.88	4.86	4.83	4.80	4.78	4.77	4.75
14 = Per Capita Consumption (kg)[1]	3.9	5.3	5.9	3.4	3.5	5.1	6.6	6.4	6.5	7.5	5.4

NOTES:
(1) Without Inventory Change

Source: Central Statistical Office of Finland

FRANCE

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1 + Primary Aluminum Production	327.7	322.5	321.8	293.2	341.5	360.9	390.4	435.6	431.9	395.1	391.4
3 + Imports of Ingot	461.8	407.1	428.1	396.1	365.0	394.6	352.0	300.4	332.4	315.3	291.1
4 + Imports of Mill Products	306.8	261.0	248.2	206.3	201.8	206.8	204.4	190.3	209.9	186.3	144.0
5 + Recovery of Secondary	266.3	236.6r	215.3	201.1	205.7	212.0	197.9	211.3	205.1	165.7	160.8
6 – Exports of Ingot	113.1	119.2	143.3	115.4	146.6	160.7	182.7	190.5	177.4	157.6	166.4
7 – Exports of Mill Products	349.1	326.5	278.1	275.5	280.8	294.6	263.0	248.5	230.0	259.9	214.6
8 = Apparent Aluminum Consumption	900.4	781.5r	792.0	705.8	686.6	718.9	699.0	698.6	771.9	645.0	606.2
11 + Inventory Change	3.7	–13.1	15.4	0.8	6.2	5.0	–18.1	22.0	3.8	–36.2	–6.1
12 = Aluminum Consumption	896.7	794.6r	776.5	705.0	680.4	713.9	717.1	677.5	768.1	681.2	612.3
13 Mid-Year Population (Millions)	55.9	55.6r	55.2	54.9	54.7	54.4	54.3	53.9	53.7	53.5	53.1
14 = Per Capita Consumption (kg)[1]	16.1	14.0	14.3	12.9	12.6	23.2	12.9	13.0	14.4	12.1	11.4
15 = Per Capita Consumption (kg)[2]	16.0	14.3	14.1	12.8	12.5	13.1	13.2	12.6	14.3	12.7	11.5

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
r—Revised

Source: Societe de Vante de l'Aluminium Pechiney

Detail may not add to totals due to rounding.

Per Capita Aluminum Consumption--Continued

GERMANY, FEDERAL REPUBLIC OF

Thousands of Metric Tons

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1. + Primary Aluminum Production	744.1	737.7	763.7	745.4	777.2	743.3	722.8	728.9r	730.7	741.9	739.6
3. + Imports of Ingot	806.7	734.0	784.0	721.6	722.7	592.1	565.3	500.0	608.8	511.5	434.0
4. + Imports of Mill Products	420.7	379.9	327.7	322.7	304.7	299.0	262.3	240.1	284.1	262.3	205.5
5. + Recovery of Secondary	678.2	610.3	590.3	567.1	480.8	458.9	398.1	413.4	425.0	425.4	394.4
6. – Exports of Ingot	323.8	333.6	301.7	281.7	294.3	321.1	255.4	253.0	223.7	247.8	271.6
7. – Exports of Mill Products	642.8	589.2	563.4	560.7	558.3	512.9	449.7	406.9	387.9	395.5	348.2
8. = Apparent Aluminum Consumption	1,683.1	1,539.1	1,600.6	1,514.4	1,432.8	1,259.3	1,243.3	1,222.6	1,437.1	1,297.7	1,153.7
9. + Beginning Inventory	230.5	294.9	254.9	253.5	302.7	221.3	269.3	240.1	325.9	269.7	229.6
10. – Ending Inventory	212.5	230.5	294.9	254.9	253.5	302.7	221.3	269.3	240.1	325.9	269.7
11. = Inventory Change	18.0	64.4	40.0	1.4	49.2	–81.4	48.0	–29.2	85.8	–56.2	–40.1
12. = Aluminum Consumption	1,701.1	1,603.5	1,560.6	1,513.0	1,383.6	1,340.7	1,195.3	1,251.8	1,351.3	1,353.9	1,193.8
13. Mid-Year Population (Millions)	61.3	61.1r	61.1	61.0	61.2	61.4	61.3	61.7	61.3	61.4	61.3
14. = Per Capita Consumption (kg)(1)	27.5	25.2	26.2	24.8	23.4	20.5	20.3	19.8	23.4	21.1	18.8
15. = Per Capita Consumption (kg)(2)	27.7	26.2	25.5	24.8	22.6	21.8	19.5	20.3	22.0	22.1	19.5

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
r—Revised

Source: Aluminium-Zentrale e.V. and German Metals Federation

GREECE

Thousands of Metric Tons

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1. + Primary Aluminum Production	148.6a	130.0	126.3a	123.4a	136.0	136.2	134.9	146.1	145.6	140.8	145.6
3. + Imports of Ingot	na	13.5	7.2	3.6	6.5	2.1	4.0	2.8	0.1	0.3	0.3
4. + Imports of Mill Products	na	10.7	7.8	4.7	5.5	5.3	4.1	4.4	3.9	3.5	3.0
6. – Exports of Ingot	na	71.8	45.8	43.2	48.4	55.1	66.6	69.2	60.2	74.0	85.2
7. – Exports of Mill Products	na	76.8	39.4	49.8	48.5	40.6	29.5	26.9	32.7	30.0	26.5
8. = Apparent Aluminum Consumption	na	5.6e	56.4e	38.7e	51.1	47.8	46.9	57.2	56.7	40.6	37.2
13. Mid-Year Population (Millions)	na	10.0	9.9r	9.9	9.9	9.9	9.8	9.7	9.6	9.5	9.4
14. = Per Capita Consumption (kg)(1)	na	0.6	5.6e	3.9e	5.2	4.9	4.8	5.9	5.9	4.3	4.0

NOTES:
(1) Without Inventory Change
r—Revised
e—Estimated
a—Source: World Bureau of Metal Statistics
na—Not received at publication time

Source: National Statistical Service of Greece and Societe de Vante de l'Aluminium Pechiney

Detail may not add to totals due to rounding.

ICELAND

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1 + Primary Aluminum Production	82.0	83.5	78.2	75.4	80.4	76.1	75.2	73.7	73.1	71.0	73.8
4 + Imports of Mill Products	2.9	2.6	2.0	1.9	2.1	3.0	2.5	2.9	2.3	1.8	2.9
7 – Exports of Mill Products	81.2	89.2	76.3	72.1	79.9	106.9	61.5	64.1	67.4	77.2	75.8
8 = Apparent Aluminum Consumption	3.7	–3.1r	3.9	5.2	2.6	–27.8	16.2	12.5	8.0	–4.4	0.8
9 + Beginning Inventory	3.0	6.7	6.8	3.5	3.0	33.8	20.1	10.5	4.8	11.3	12.0
10 – Ending Inventory	3.6	3.0	8.7	6.8	3.5	3.0	33.8	20.1	10.5	4.8	11.3
11 = Inventory Change	–0.6	+5.7	–1.9	–3.3	–0.5	–30.8	13.7	9.6	5.7	–6.5	–0.6
12 = Aluminum Consumption	3.1	2.6	2.0	1.9	2.1	3.0	2.5	2.9	2.3	2.2	1.5
13 Mid-Year Population (Millions)	0.252	0.247	0.244	0.242	0.240	0.238	0.235	0.229	0.228	0.226	0.220
14 = Per Capita Consumption (kg)(1)	14.7	–12.6	16.0	21.5	10.8	–116.8	68.9	54.6	35.1	–19.3	3.7
15 = Per Capita Consumption (kg)(2)	12.3	10.5	8.2	7.9	8.7	12.6	10.6	12.7	10.1	9.6	6.5

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
r—Revised

Source: Icelandic Aluminum Co. Ltd.

IRISH REPUBLIC

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
3 + Imports (1)	49.8	50.2	49.0	42.3	42.4	36.2	30.8	28.6	31.2	29.8	25.5
6 – Exports (1)	34.2	31.5	31.3	26.2	24.2	23.0	16.9	14.5	16.3	13.0	9.6
8 = Apparent Aluminum Consumption	15.6	18.7	17.7	16.1	18.2	13.2	13.9	14.1	14.9	16.8	15.9
13 Mid-Year Population (Millions)	3.54	3.54	3.54	3.56	3.54	3.51	3.48	3.40	3.40	3.40	3.30
14 = Per Capita Consumption (kg)(2)	4.4	5.3	5.0	4.5	5.1	3.8	4.0	4.1	4.4	4.9	4.8

NOTES:
(1) Includes ingot and mill products
(2) Without Inventory Change

Source: Central Statistics Office, Dublin.

ITALY

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1 + Primary Aluminum Production	226.3	232.6	242.6	224.1	230.2	195.7	232.9	273.8	271.2	269.1	270.8
3 + Imports of Ingot	417.9	376.9	347.7	319.9	291.8	254.5	211.2	208.8	294.8	236.6	190.5
4 + Imports of Mill Products	177.8	155.6	125.2	109.7	106.1	110.3	83.3	81.6	111.6	90.2	60.7
5 + Recovery of Secondary	377.8	355.0	301.0	282.0	283.0	333.0	283.0	287.0	298.0	258.0	238.0
6 – Exports of Ingot	38.4	54.6	34.3	43.8	32.2	41.3	54.1	49.8	11.8	22.4	69.3
7 – Exports of Mill Products	118.2	108.2	105.9	103.0	94.0	112.2	100.9	93.8	86.4	109.9	105.7
8 = Apparent Aluminum Consumption	1,043.2	937.3	876.3	788.9	784.9	740.0	655.4	707.6	877.4	721.6	585.0
11 + Inventory Change	–8.6	–3.1	40.0	9.2	19.8	–13.1	–38.0	4.8	57.3	10.3	–38.0
12 = Aluminum Consumption	1,034.6	940.4	836.3	779.7	765.1	753.1	693.5	702.8	820.1	711.2	623.0
13 Mid-Year Population (Millions)	57.5	57.3	57.2	57.1	57.0	56.8	56.3	56.1	55.9	55.8	55.7
14 = Per Capita Consumption (kg)(1)	18.2	16.4	15.3	13.8	13.8	13.0	11.6	12.6	15.7	12.9	10.5
15 = Per Capita Consumption (kg)(2)	18.0	16.4	14.6	13.7	13.4	13.3	12.3	12.5	14.7	12.7	11.2

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

Source: Associazione Nazionale Industrie Metalli Non Ferrosi

Detail may not add to totals due to rounding.

Per Capita Aluminum Consumption—Continued

JAPAN

Thousands of Metric Tons

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
+ Primary Aluminum Production	49.0	52.8	148.4	231.3	291.1	258.6	355.1	776.8	1,095.7	1,014.2	1,061.8
+ Stockpile Adjustment	—	—	6.2	108.8	22.0	−63.5	−60.2	−22.0	—	22.0	−12.3
+ Imports of Ingot	2,292.0	1,835.3	1,366.0	1,575.5	1,347.8	1,603.7	1,446.6	1,129.3	910.1	748.4	740.2
+ Imports of Mill Products	84.9	52.5	33.1	32.6	39.0	33.6	27.6	30.0	44.9	32.1	26.8r
+ Secondary Recovery	1,220.4	962.9	838.7	803.4	692.8	700.0	560.5	550.1	563.0	476.1	494.4
− Exports of Ingot	3.4	1.9	2.0	2.2	2.3	1.7	6.7	12.2	7.6	8.0	54.6
− Exports of Mill Products	134.5	212.7	224.6	243.9	227.4r	197.0	154.9	113.9	73.0	98.4	148.5
= Apparent Aluminum Consumption	3,508.4	2,688.9	2,185.8	2,605.5	2,163.0r	2,333.7	2,168.0r	2,338.1	2,533.1	2,186.4r	2,107.8
+ Beginning Inventory	515.3	479.2r	775.3r	872.8r	964.2r	1,037.6r	1,077.0r	50.7r	505.8r	589.4r	617.0r
− Ending Inventory	580.1	515.3r	479.2r	775.3r	872.8r	964.2r	1,037.6r	1,077.0r	760.7r	505.8r	589.4r
= Inventory Change	64.8	36.1r	296.1r	97.5r	91.4r	73.4r	39.4r	316.3r	254.9r	−83.6r	−27.6r
= Aluminum Consumption	3,443.6	2,652.8r	2,461.9r	2,603.0r	2,254.4r	2,407.1r	2,207.4r	2,021.8r	2,278.2r	2,270.0r	2,135.4r
Mid-Year Population (Millions)	122.8	122.3	121.7	121.0	120.3r	119.5	118.8	117.9	117.1	116.1	114.9
= Per Capita Consumption (kg)[1]	28.6	22.0	17.8	20.7	18.0	19.5	18.3r	19.8	21.6	18.8	18.3
= Per Capita Consumption (kg)[2]	28.0	21.7r	20.2r	21.5r	18.7r	20.1r	18.6r	17.1r	19.5r	19.5r	18.5r

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

Source: Japan Aluminium Federation

KOREA, REPUBLIC OF

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
+ Primary Aluminum Production	na	na	na	17.1	17.1	12.6	14.8	17.2	17.6	17.6	17.7
+ Imports of Ingot	na	na	na	160.4	143.2	134.3	105.0	98.6	63.6	80.6	65.6
+ Imports of Mill Products	na	na	na	30.9	34.6	31.7	24.0	17.0	20.0	22.6	20.4
+ Recovery of Secondary	na	na	na	10.3	9.8	10.7	13.3	11.5	7.8	10.2	8.9
− Exports of Ingot	na	na	na	0.7	0.2	0.2	—	—	1.5	0.6	1.0
− Exports of Mill Products	na	na	na	33.5	21.3	20.9	24.0	25.7	35.0	9.0	13.0
= Apparent Aluminum Consumption	na	na	na	184.5	183.2	168.2	133.1	118.6	72.5	121.4	118.6
Mid-Year Population (Millions)	na	na	na	41.1	40.6	40.0	39.3	38.7	38.2	37.6	37.0
= Per Capita Consumption (kg)[1]	na	na	na	4.5	4.5	4.2	3.4	3.1	1.9	3.2	3.2

NOTES:
(1) Without Inventory Change
na—Not received at publication time
r—Revised

SOURCE: Ministry of Commerce and Industry

MEXICO

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
+ Primary Aluminum Production	68.3	60.2	37.0	42.7	44.0	39.7	41.2	43.2	42.6	43.2	43.1
+ Imports of Ingot	21.7	19.9r	35.2r	78.7r	45.2r	17.5r	32.3	58.8	63.5	56.1	39.4
+ Imports of Mill Products	29.8	35.2r	20.6r	25.7r	15.3r	6.2r	62.2	82.9	49.4	36.4	29.2
+ Recovery of Secondary	4.5	8.7	16.4r	22.3r	19.6	15.1	25.8	20.3	17.1	14.9	12.2
− Exports of Ingot	15.1	9.6r	8.0r	5.0r	1.9r	0.9r	0.2	*	*	—	—
− Exports of Mill Products	13.9	11.5r	4.1r	12.1r	6.2r	1.3r	1.1	3.1	3.4	3.1	3.7
= Apparent Aluminum Consumption	94.2	102.8	97.2r	152.4r	116.0	76.4	160.2	202.1	169.3	147.4	120.2
+ Beginning Inventory	4.6	6.7	8.2	6.0	7.5	13.4	4.5	2.0	1.5	1.8	2.5
− Ending Inventory	3.0	4.6	6.7	8.2	6.0	7.5	13.4	4.5	2.0	1.5	1.8
= Inventory Change	1.6	2.1	−1.5	2.2	−1.5	−5.9	8.9	2.5	0.5	−0.3	−0.7
= Aluminum Consumption	95.9	104.9	98.7r	150.2r	117.4r	82.2	151.2	199.6	168.8	147.7	120.9
Mid-Year Population (Millions)	83.0	81.0	78.0	75.0	73.0	72.0	70.0	68.0	67.0	67.0	64.7
= Per Capita Consumption (kg)[1]	1.1	1.3r	1.3r	2.2r	1.6	1.1	2.3	3.0	2.5	2.2	1.9
= Per Capita Consumption (kg)[2]	1.2	1.3r	1.3r	2.0	1.6	1.1	2.2	2.9	2.5	2.2	1.9

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
r—Revised
**—Less than 50 metric tons*
Detail may not add to totals due to rounding

Source: Instituto Mexicano del Aluminio, A.C.

NETHERLANDS

		1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1	+ Primary Aluminum Production	270.7	268.7	265.8r	250.6	249.2	235.4	250.9	262.1	258.2	255.6	259.3
3	+ Imports of Ingot	167.7	145.5	151.1	133.4	133.0	129.0	195.5	161.3	215.8	167.8	145.5
4	+ Imports of Mill Products	171.8	149.7	134.5	126.0	120.5	272.6r	107.9r	92.4	113.3	106.5	83.0
5	+ Recovery of Secondary	115.9	101.4	96.8r	83.3r	59.9	58.2	49.8	50.2	53.4	46.6	44.0
6	– Exports of Ingot	329.8	314.4	301.3	296.8	279.0	277.3	350.8	352.0	365.3	359.4	294.4
7	– Exports of Mill Products	139.2	134.1	104.9r	125.7r	107.3	262.8r	89.7r	86.5	98.7	88.3	67.7
8	= Apparent Aluminum Consumption	257.1	216.8	215.8r	197.0r	176.3	155.1r	163.6r	127.6	176.7	128.8	169.7
9	+ Beginning Inventory	10.7	8.2	9.9	12.1	10.7	10.7	7.8	10.3	7.9	43.7	35.4
10	– Ending Inventory	10.3	10.7	8.2	9.9	6.8	11.5	9.6	8.7	10.3	7.7	50.0
11	= Inventory Change	–0.4	+2.5	–1.7	–2.2	–3.9	0.8	1.8	–1.6	2.4	–36.0	24.6
12	= Aluminum Consumption	257.5	214.3	217.5r	199.2r	180.2	154.3r	161.8r	129.2	174.3	164.8	145.2
13	Mid-Year Population (Millions)	14.7	14.6r	14.5	14.5	14.4	14.4	14.3	14.2	14.1	14.0	13.9
14	= Per Capita Consumption (kg)[1]	17.5	14.8r	14.9r	13.6r	12.2	10.8r	11.4r	9.0	12.5	9.2	12.2
15	= Per Capita Consumption (kg)[2]	17.5	14.7r	15.0r	13.7r	12.5	10.7	11.3r	9.1	12.4	11.8	10.4

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
r—Revised.

Source: Vereniging Nederlands Aluminium Instituut

NEW ZEALAND

		1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1	+ Primary Aluminum Production	255.6	249.0	236.2	241.6	241.6	220.1	163.1	154.3	154.5	154.1	149.9
3	+ Imports of Ingot	9.2	5.4	0.1	0.5	1.4	6.6	7.2	3.4	—	—	—
4	+ Imports of Mill Products	7.2	6.0	5.0	3.7	3.6	2.9	3.1	2.6	2.4	3.4	2.8
5	+ Recovery of Secondary	3.1	4.0	4.0	4.0	3.7	3.0	2.7	3.0	2.0	2.0	1.8
6	– Exports of Ingot	232.2	219.0	209.1	224.6	212.8	210.4	140.2	124.8	126.2	118.6	134.1
7	– Exports of Mill Products	7.8	4.6	5.4	9.5	6.2	5.4	7.7	5.7	5.4	2.7	1.9
8	= Apparent Aluminum Consumption	35.1	40.8	30.8	15.7	31.3	16.8	28.2	32.8	27.4	38.2	18.5
9	+ Beginning Inventory	14.3	12.6	15.2	32.5	31.8	41.6	35.6	31.9	28.6	39.7	45.5
10	– Ending Inventory	15.4	14.3	12.6	15.2	32.5	31.8	41.6	35.6	31.9	28.6	39.7
11	= Inventory Change	1.1	1.7	–2.6	–17.3	0.7	–9.8	6.0	3.7	3.3	11.1	–5.8
12	= Aluminum Consumption	34.0	39.1	33.4	33.0	30.6	26.6	22.2	29.1	24.1	27.1	24.3
13	Mid-Year Population (Millions)	3.29	3.28	3.28	3.27	3.23	3.19	3.16	3.13	3.10	3.15	3.13
14	= Per Capita Consumption (kg)[1]	10.7	12.4	9.4	4.8	9.7	5.3	8.9	10.5	8.8	12.1	5.9
15	= Per Capita Consumption (kg)[2]	10.3	11.9	10.2	10.1	9.5	8.3	7.0	9.3	7.8	8.6	7.8

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

Source: Comalco Limited and New England Department of Statistics

Detail may not add to totals due to rounding.

Per Capita Aluminum Consumption—Continued

NORWAY

Thousands of Metric Tons

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1 + Primary Aluminum Production	826.6	797.8	729.1	724.1	760.8	715.4	645.1	636.1	662.0	673.5	656.9
3 + Imports of Ingot	90.7	57.1	35.1	34.7	31.6	11.2	21.0	14.8	16.4	8.9	8.0
4 + Imports of Mill Products	30.6	33.1	51.9	46.0	51.8	42.4	37.2	38.5	42.5	29.9	34.4
5 + Recovery of Secondary	7.2	—	—	—	2.3	0.7	2.8	2.8	3.5	3.6	4.0
6 − Exports of Ingot	755.0	754.2	646.5	643.8	638.7	637.4	545.4	524.0	521.2	565.3	630.1
7 − Exports of Mill Products	113.1	102.7	89.3	91.7	91.8	105.1	76.8	74.9	71.6	72.7	61.1
8 = Apparent Aluminum Consumption	87.0	31.1	80.3	69.3	116.0	27.2	83.8	93.3	131.7	78.0	12.1
11 + Inventory Change	—	−28.5	4.7	−14.3	26.8	−27.4	−28.4	15.8	38.7	−18.5	−71.4
12 = Aluminum Consumption	87.0	59.6	75.6	83.6	89.2	54.6	112.2	77.5	93.0	96.5	83.5
13 Mid-Year Population (Millions)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.0	4.0
14 = Per Capita Consumption (kg)[1]	21.2	7.6	19.6	16.9	28.3	6.6	20.4	22.7	32.1	19.5	3.0
15 = Per Capita Consumption (kg)[2]	21.2	14.5	18.4	20.4	21.8	13.3	27.4	18.9	22.7	24.1	20.9

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

Source: Skan Aluminium

PANAMA

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
3 + Imports of Ingot	0.6	1.8	1.6	1.4	1.2	1.2	1.2	1.6	1.6	1.4	0.9
4 + Imports of Mill Products	2.4	2.2	0.4	0.4	3.6	1.6	0.1	0.2	0.1	0.3	0.3
5 + Secondary Recovery	1.2	1.3	0.7	0.7	0.6	0.6	0.6	0.5	0.4	0.4	0.3
6 − Exports of Ingot	0.6	0.9	0.5	0.4	0.3	0.2	—	—	—	—	—
7 − Exports of Mill Products	0.5	0.6	0.5	0.5	0.4	0.2	0.3	0.2	0.3	0.3	0.2
8 = Apparent Aluminum Consumption	3.1	3.9	1.8	1.8	4.7	3.0	1.6	2.0	1.8	1.7	1.3
13 Mid-Year Population (Millions)	2.3	2.3	2.3	2.20	2.14	2.10	2.00	1.98	1.95	1.90	1.90
14 = Per Capita Consumption (kg)[1]	1.7	1.7	0.8	0.8	2.2	1.4	0.8	1.0	0.9	0.9	0.7

NOTES:
(1) Without Inventory Change

Source: Aluminio de Panama, S.A.

PHILIPPINES, REPUBLIC OF

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
3 + Imports of Ingot	na	5.3	4.4	2.5	2.7	8.5	9.5	10.4	17.6	28.4	16.8
4 + Imports of Mill Products	na	7.9	3.6	4.7	6.7	9.4	16.9	4.4	5.5	7.9	4.3
6 − Exports of Ingot	na	—	—	—	—	—	—	*	*	—	—
7 − Exports of Mill Products	na	*	*	*	0.3	2.9	4.3	4.7	5.6	2.9	3.4
8 = Apparent Aluminum Consumption	na	13.2	8.1	7.2	9.1	15.0	22.1	10.1	17.5	33.4	17.6
13 Mid-Year Population (Millions)	na	57.4	56.0	54.7	53.4	52.1	50.8	49.5	48.3	47.1	45.9
14 = Per Capita Consumption (kg)[1]	na	0.2	0.1	0.1	0.2	0.3	0.4	0.2	0.4	0.7	0.4

NOTES:
(1) Without Inventory Change
**—Less than 50 metric tons*
na—Not received at publication time

Source: National Census and Statistics Office

Detail may not add to totals due to rounding.

PORTUGAL

	1988	1987	1986e	1985	1984	1983	1982	1981	1980	1979	1978
3 + Imports of Ingot	na	na	39.0	35.9	26.1	43.0	46.2	40.1	27.5	21.8	20.2
4 + Imports of Mill Products	na	na	16.3	13.4	13.2	15.3	17.9	18.2	16.6	14.9	16.6
5 + Recovery of Secondary	na	na	3.2	2.2	2.4	2.4	1.9	2.0	2.7	3.8	3.1
6 – Exports of Ingot	na	na	—	2.0	0.8	0.3	0.3	0.3	0.3	0.9	0.2
7 – Exports of Mill Products	na	na	12.4	11.2	9.3	14.9	16.1	10.6	8.6	6.0	1.5
8 = Apparent Aluminum Consumption	na	na	46.1	38.4	31.7	45.4	49.6	49.4	37.9	33.6	38.2
13 Mid-Year Population (Millions)	na	na	10.2	10.2	10.1	10.0	9.9	9.9	9.8	9.8	9.8
14 = Per Capita Consumption (kg)[1]	na	na	4.5	3.8	3.1	4.5	5.0	5.0	3.9	3.4	3.9

NOTES:
(1) Without Inventory Change

Source: National Statistical Institute

EL SALVADOR

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
3 + Imports of Ingot	1.8	1.3	1.7	0.5	1.2	1.1	0.9	1.3	1.6	2.4	2.4
4 + Imports of Mill Products	0.7	0.7	—	—	0.3	1.9	—	0.8	0.4	1.2	2.0
5 + Recovery of Secondary	0.1	0.6	0.1	0.5	0.5	0.5	0.6	0.6	0.7	0.9	1.0
7 – Exports of Mill Products	1.0	1.0	0.9	0.8	1.1	1.0	0.4	1.3	1.9	2.4	3.3
8 = Apparent Aluminum Consumption	1.5	1.6	0.9	0.2	1.0	2.5	1.2	1.5	0.8	2.1	2.2
13 Mid-Year Population (Millions)	5.25	5.17	4.97	4.85	4.78	4.83	4.74	4.60	4.50	4.40	4.40
14 = Per Capita Consumption (kg)[1]	0.29	0.32	0.17	0.04	0.20	0.52	0.25	0.32	0.18	0.47	0.49

NOTES:
(1) Without Inventory Change

Source: Aluminio de Centro America, S.A.

KINGDOM OF SAUDI ARABIA

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1 + Primary Aluminum Production	—	—	—	—	—	—	*	*	—	—	—
3 + Imports of Ingot	47.0	36.6r	9.1	9.5	8.7	14.6	5.2	80.3	73.4	53.3	46.4
4 + Imports of Mill Products	40.0	30.8	38.2	99.8	61.6	148.9	28.8	12.2	14.0	12.3	12.2
6 – Exports of Ingot	—	—	—	—	—	—	—	3.8	1.7	0.5	0.4
7 – Exports of Mill Products	—	—	—	—	—	—	0.5	*	0.2	0.5	0.2
8 = Apparent Aluminum Consumption	103.0	87.4r	47.3	109.2	70.3	163.5	33.4	88.6	85.5	64.6	58.1
13 Mid-Year Population (Millions)	12.0	12.0r	8.0	8.0	7.8	7.8	7.8	7.8	7.6	7.5	7.3
14 = Per Capita Consumption (kg)[1]	8.5	7.3r	5.9	13.7	9.0	21.0	4.3	11.4	11.2	8.6	8.0

NOTES:
(1) Without Inventory Change
**—Less than 50 metric tons*
r—Revised

Source: Saudi Basic Industries Corp.

Detail may not add to totals due to rounding.

Per Capita Aluminum Consumption—Continued

SINGAPORE, REPUBLIC OF

Thousands of Metric Tons

		1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
3	+ Imports of Ingot	126.0	41.0	16.0	14.0	11.0	18.0	11.0	8.0	9.0	6.0	8.0
4	+ Imports of Mill Products	46.0	40.0	29.0	32.0	33.0	35.0	28.0	27.0	21.0	23.0	16.0
6	– Exports of Ingot	107.0	13.0	6.0	8.0	7.0	13.0	6.0	3.0	4.0	3.0	4.0
7	– Exports of Mill Products	10.0	9.0	9.0	8.0	7.0	14.0	7.0	4.0	4.0	4.0	4.0
8	= Apparent Aluminum Consumption	55.0	59.0	30.0	30.0	30.0	26.0	26.0	28.0	22.0	22.0	16.0
13	Mid-Year Population (Millions)	2.65	2.61	2.59	2.56	2.53	2.50	2.50	2.40	2.40	2.40	2.40
14	= Per Capita Consumption (kg)[1]	20.8	22.6	11.6	11.7	11.9	10.4	10.4	11.7	9.1	9.2	6.7

NOTES:
(1) Without Inventory Change

Source: Department of Statistics, Singapore

SOUTH AFRICA, REPUBLIC OF

		1988a	1987a	1986	1985	1984	1983	1982	1981	1980	1979	1978
1	+ Primary Aluminum Production	172.2	170.6	169.6	164.6	167.4	161.3	105.8	83.7	86.0	85.1	79.5
3	+ Imports of Ingot	0.4	0.4	0.4	0.4	0.2	0.4	0.7	1.8	0.3	0.6	0.6
4	+ Imports of Mill Products	17.0	17.0	17.0	16.5	11.8	14.8	10.8	12.0	11.1	7.1	6.5
5	+ Recovery of Secondary	27.0	27.0	27.0	25.0	28.2	31.7	27.2	28.3	27.2	16.5	10.2
6	– Exports of Ingot	68.3	93.8	92.4	90.5	82.7	110.5	24.6	2.9	12.9	33.1	38.5
7	– Exports of Mill Products	3.0	3.0	3.0	2.5	2.2	0.7	0.9	1.1	3.3	1.7	2.1
8	= Apparent Aluminum Consumption	145.3	119.2	118.6	113.5	122.7	97.0	119.0	121.8	108.4	74.5	56.2
11	+ Inventory Change	—	—	2.2	– 2.5	8.0	– 11.6	12.3	3.7	0.4	0.8	– 7.2
12	= Aluminum Consumption	145.3	119.2	116.4	116.0	114.7	108.6	106.7	118.1	108.0	73.7	63.4
13	Mid-Year Population (Mil.)[3]	28.0	28.0	28.0	27.4	26.8	26.1	26.2	25.6	24.1	28.2	27.3
14	= Per Capita Consumption (kg)[1]	5.2	4.3	4.2	4.1	4.6	3.7	4.5	4.8	4.5	2.6	2.1
15	= Per Capita Consumption (kg)[2]	5.2	4.3	4.2	4.2	4.3	4.2	4.1	4.6	4.5	2.6	2.3

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
(3) 1980 – 1983 Population excludes independent homelands—Republics of Transkei, Bophutatswanda and Venda
1984 – pres. Population excludes independent homelands—Republics of Transkei, Bophutatswanda, Venda and Ciskei
a—Source: World Bureau of Metal Statistics

Source: Aluminium Federation of South Africa

SPAIN

		1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1	+ Primary Aluminum Production	294.0	341.0	354.7	370.1	380.8	355.5	365.1	396.6	386.5	259.9	212.2
3	+ Imports of Ingot	45.0	9.0	19.2	9.7	10.6	12.3	18.3	13.6	3.2	7.2	37.9
4	+ Imports of Mill Products	59.0	47.2	40.0	20.6	26.0	41.6	31.0	21.3	24.0	20.3	15.9
6	– Exports of Ingot	75.0	99.3	142.2	202.7	232.2	165.9	145.2	162.7	106.8	42.9	5.8
7	– Exports of Mill Products	56.0	47.0r	43.3	41.8	40.5	35.3	36.9	39.0	45.4	48.2	28.0
8	= Apparent Aluminum Consumption	267.0	250.9	228.4	155.9	144.7	208.2	232.3	229.9	261.5	196.3	232.2
11	+ Inventory Change	4.0	9.0	8.3	– 18.0	– 25.0	4.0	23.5	33.5	21.0	– 18.6	– 24.0
12	= Aluminum Consumption	271.0	259.9	220.1	173.9	169.7	204.2	208.8	196.4	240.6	214.9	256.2
13	Mid-Year Population (Millions)	39.0	38.9	38.7	38.5	38.4	38.2	37.9	37.7	37.4	37.1	36.8
14	= Per Capita Consumption (kg)[1]	6.8	6.5r	5.9	4.0	3.8	5.5	6.1	6.1	7.0	5.3	6.3
15	= Per Capita Consumption (kg)[2]	6.9	6.7r	5.9	4.5	4.4	5.3	5.5	5.2	6.4	5.8	7.0

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
r—Revised

Source: Aluminio de Galicia, S.A.

Detail may not add to totals due to rounding

SWEDEN

		1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1	+ Primary Aluminum Production	99.2	81.5	77.1	83.7	82.9	82.2	78.9	82.8	81.6	82.0	82.0
3	+ Imports of Ingot	58.8	43.1	54.3	46.3	48.5	49.7	45.5	38.7	36.9	36.7	34.2
4	+ Imports of Mill Products	99.1	91.0	87.5	82.0	87.4	86.3	74.0	63.0	64.4	65.4	55.1
5	+ Recovery of Secondary	49.4	48.8	41.9	39.4	37.0	29.0r	27.2	26.7	24.5	24.0	25.0
6	– Exports of Ingot	59.9	43.6	39.4	41.8	38.2	39.2	35.2	37.8	17.7	19.6	38.5
7	– Exports of Mill Products	55.1	46.1	50.7	42.9	40.4	50.6	46.3	43.0	47.1	57.8	53.6
8	= Apparent Aluminum Consumption	191.5	174.7	170.7	166.7	178.3	157.5	144.1	130.4	142.6	130.7	104.2
11	+ Inventory Change	– 0.3	+ 5.2	+ 1.1	– 5.3	5.8	– 2.0	– 6.7	– 0.7	12.9	– 8.1	– 18.5
12	= Aluminum Consumption	191.2	179.9	171.8	172.0	172.5	159.5	150.8	131.1	129.7	138.8	122.7
13	Mid-Year Population (Millions)	8.4	8.4	8.4	8.4	8.3	8.3	8.3	8.3	8.3	8.3	8.3
14	= Per Capita Consumption (kg)[1]	22.7	20.8	20.4	20.0	21.4	18.9	17.3	15.7	17.1	15.7	12.6
15	= Per Capita Consumption (kg)[2]	22.7	21.4	20.5	20.6	20.7	19.1	18.1	15.8	15.6	16.7	14.8

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
r—Revised

Source: National Central Bureau of Statistics and Granges Aluminium

SWITZERLAND

		1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1	+ Primary Aluminum Production	71.8	73.4	80.6	72.6	79.2	76.0	75.3	82.5	86.3	83.0	79.6
3	+ Imports of Ingot	94.8	87.0	86.7	77.2	62.8	57.2	47.4	36.1	52.8	39.6	33.9
4	+ Imports of Mill Products	74.1	64.5	65.2	62.2	56.1	52.7	47.1	47.9	51.6	42.6	36.1
5	+ Recovery of Secondary	28.2	25.5	25.5	26.1	23.0	21.1	18.7	20.6	19.4	19.2	17.9
6	– Exports of Ingot	32.2	26.6	23.4	19.9	25.7	26.7	25.4	22.7	22.8	26.4	17.6
7	– Exports of Mill Products	116.0	99.6	99.3	95.1	84.3	80.4	70.5	66.0	72.0	76.6	67.2
8	= Apparent Aluminum Consumption	120.7	124.2	135.3	123.1	111.1	99.9	92.6	98.3	115.3	81.6	82.6
11	+ Inventory Change	+ 4.4	– 0.2	2.7	0.1	– 7.3	3.1	– 4.2	– 0.7	5.9	– 6.7	– 1.0
12	= Aluminum Consumption	125.1	124.0	132.6	123.0	118.4	96.8	96.8	99.1	109.4	88.3	83.6
13	Mid-Year Population (Millions)	6.6	6.6	6.5	6.5	6.5	6.5	6.5	6.4	6.4	6.2	6.2
14	= Per Capita Consumption (kg)[1]	18.2	18.9	20.7	18.9	17.1	15.4	14.3	15.4	18.0	13.2	13.3
15	= Per Capita Consumption (kg)[2]	18.9	18.9	20.3	18.9	18.2	15.0	15.0	15.5	17.1	14.2	13.5

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

Source: Vereinigung Schweizerischer Aluminium - Halbzeugwerke

Detail may not add to totals due to rounding

Per Capita Aluminum Consumption—Continued

Thousands of Metric Tons

TAIWAN, REPUBLIC OF CHINA

		1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1	+ Primary Aluminum Production	na	na	na	—	—	—	10.0	30.0	62.5	56.2	50.4
3	+ Imports of Ingot	na	na	na	147.2	99.9	139.1	88.6	47.7	58.3	52.9	47.6
4	+ Imports of Mill Products	na	na	na	32.4	22.8	23.2	15.0	9.7	9.6	11.3	7.3
5	+ Recovery of Secondary	na	na	na	3.6	5.3	24.2	15.5	16.8	19.2	13.8	9.5
6	– Exports of Ingot	na	na	na	5.8	3.1	2.6	0.6	—	*	*	0.4
7	– Exports of Mill Products	na	na	na	29.6	17.3	18.4	14.0	19.2	17.2	15.1	7.4
8	= Apparent Aluminum Consumption	na	na	na	147.8	107.6	165.5	114.5	85.0	132.5	119.1	107.0
11	+ Inventory Change	na	na	na	na	na	na	0.9	– 33.5	23.9	0.1	7.8
12	= Aluminum Consumption	na	na	na	na	na	na	113.6	118.6	108.6	119.0	99.2
13	Mid-Year Population (Millions)	na	na	na	19.0	18.8	18.6	18.3	18.0	17.8	17.5	17.0
14	= Per Capita Consumption (kg)(1)	na	na	na	7.8	5.7	8.9	6.3	4.7	7.4	6.8	6.3
15	= Per Capita Consumption (kg)(2)	na	na	na	na	na	na	6.2	6.6	6.1	6.8	5.8

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
**—Less than 50 metric tons*
na—Not received at publication time

Source: Taiwan Aluminium Corporation

TURKEY, REPUBLIC OF

		1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1	+ Primary Aluminum Production	60.0	95.2	144.4	113.3	75.1	57.4	84.2	131.4	35.0	34.1	40.7
3	+ Imports of Ingot	62.0	94.0	38.0	60.0	68.5	60.0	35.1	50.1	6.4	13.0	11.2
4	+ Imports of Mill Products	15.0	15.0	6.0	6.0	3.1	5.7	8.6	10.8	21.6	7.0	1.7
6	– Exports of Ingot	—	—	—	—	0.2	1.3	1.0	—	—	—	—
7	– Exports of Mill Products	30.0	30.0	24.0	29.0	27.1	21.4	14.3	22.1	16.0	6.0	6.2
8	= Apparent Aluminum Consumption	107.0	174.2	164.4	150.3	119.4	100.4	112.6	180.2	47.0	48.1	47.4
13	Mid-Year Population (Millions)	49.3	49.3	49.3	49.3	48.3	47.3	46.3	45.3	44.4	43.5	42.6
14	= Per Capita Consumption (kg)(1)	2.2	3.3	3.3	3.0	2.5	2.1	2.4	4.0	1.1	1.1	1.1

NOTES:
(1) Without Inventory Change

Source: State Institute of Statistics

UNITED KINGDOM

		1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1	+ Primary Aluminum Production	300.2	294.4	275.9	275.4	287.9	252.5	240.8	339.2	374.5	359.4	346.2
3	+ Imports of Ingot	243.4	175.1	180.6	145.8	170.2	162.4	154.8	123.3	169.4	182.1	185.2
4	+ Imports of Mill Products	298.0	285.5	240.6	227.5	234.2	224.2	200.6	157.4	145.0	179.4	157.9
5	+ Recovery of Secondary	99.6	110.8	110.1	121.9	137.1	122.6	108.4	140.7	150.0	159.9	174.2
6	– Exports of Ingot	147.9	125.9	110.3	121.1	118.2	126.5	117.5	168.5	188.9	200.0	155.5
7	– Exports of Mill Products	140.2	127.9	121.4	104.5	104.7	90.9	93.0	77.6	101.6	71.2	59.9
8	= Apparent Aluminum Consumption	653.1	612.0	575.5	545.0	606.5	544.3	494.1	514.6	548.3	609.6	648.0
9	+ Beginning Inventory	86.8	95.1	105.2	119.4	118.7	106.4	85.1	97.4	96.1	46.2	72.6
10	– Ending Inventory	88.7	86.8	95.1	105.2	119.4	118.7	106.4	85.1	97.4	96.1	46.2
11	= Inventory Change	– 1.9	– 8.3	– 10.1	– 14.2	0.7	12.3	21.3	– 12.3	1.4	49.9	– 26.4
12	= Aluminum Consumption	651.2	620.3	585.6	559.2	605.8	532.0	472.8	526.9	546.9	559.7	674.4
13	Mid-Year Population (Millions)	57.1	56.8	56.7	56.6	56.4	56.0	56.0	68.0	67.0	55.8	55.9
14	= Per Capita Consumption (kg)(1)	11.4	10.8	10.1	9.6	10.8	9.7	8.8	7.6	8.2	10.9	11.6
15	= Per Capita Consumption (kg)(2)	11.4	10.9	10.3	9.9	10.7	9.5	8.4	7.7	8.2	10.0	12.1

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change

Source: Aluminium Federation, Ltd.

Detail may not add to totals due to rounding

UNITED STATES of AMERICA

		1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1	+ Primary Aluminum Production	3,944.5	3,346.9	3,038.7	3,499.7	4,099.1	3,353.3	3,273.7	4,488.7	4,653.6	4,556.9	4,358.0
3	+ Imports of Ingot	1,027.3	1,245.5	1,348.8	868.7	882.0	742.7	616.3	644.7	526.8	517.8	687.5
4	+ Imports of Mill Products	440.0	455.9	493.9	463.0	494.3	280.5	206.7	137.9	76.2	193.4	219.7
5	+ Recovery of Secondary	2,122.0	1,986.0r	1,773.0	1,762.0	1,760.0	1,773.0	1,665.6	1,789.9	1,576.7	1,612.1	1,517.7
6	- Exports of Ingot	400.0	281.2	209.6	347.3	259.6	360.7	363.9	312.[illegible]	648.6	182.1	114.9
7	- Exports of Mill Products	386.3	287.0	203.5	199.3	228.6	202.1	223.4	309.[illegible]	346.3	282.0	224.2
8	= Apparent Aluminum Consumption	6,747.5	6,466.1r	6,241.3	6,046.8	6,747.2	5,586.7	5,175.0	6,439.7	5,838.4	6,416.1	6,443.8
9	+ Beginning Inventory	1,893.8	2,235.3	2,342.8	2,653.5	2,265.4	2,812.0	2,996.7	2,302.5	2,324.8	2,492.1	2,588.4
10	- Ending Inventory	1,882.9	1,893.8	2,235.3	2,342.8	2,653.5	2,265.4	2,812.0	2,996.7	2,302.5	2,324.8	2,492.1
11	= Inventory Change	-10.9	-341.6	-107.5	-310.7	388.1	-546.6	-184.7	694.2	-22.3	-167.3	-96.3
12	= Aluminum Consumption	6,758.4	6,807.7r	6,348.8	6,357.5	6,359.1	6,133.3	5,359.7	5,745.5	5,860.7	6,583.4	6,540.1
13	Mid-Year Population (Millions)	245.8	243.7	241.0	238.7	236.5	234.0	231.5	229.3	227.7	220.6	217.7
14	= Per Capita Consumption (kg)[1]	27.5	26.5	25.9	25.3	28.5	23.9	22.4	26.1	25.6	29.1	29.6
15	= Per Capita Consumption (kg)[2]	27.5	27.9	26.3	26.6	26.9	26.2	23.2	25.1	25.7	29.8	30.0

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
r—Revised

Source: the Aluminum Association, Inc.

VENEZUELA

		1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
1	+ Primary Aluminum Production	443.4	439.6	421.0	404.0	387.0	338.0	273.6	313.5	321.3	210.3	67.1
3	+ Imports of Ingot	na	na	6.0	3.0	0.4	0.3	0.9	0.4	0.2	9.1	—
4	+ Imports of Mill Products	na	na	17.0	19.0	21.0	13.0	25.7	23.8	24.8	15.3	27.1
5	+ Recovery of Secondary	10.0	10.0	24.0	21.0	14.0	20.0	10.0	10.0	10.0	10.2	10.0
6	- Exports of Ingot	255.0	302.8	247.0	297.0	179.0	292.0	208.5	239.0	217.3	123.4	28.1
7	- Exports of Mill Products	na	na	103.0	106.0	68.0	22.0	0.2	24.4	37.1	23.0	—
8	= Apparent Aluminum Consumption	na	na	118.0	44.0	179.0	60.0	101.5	84.3	101.9	98.4	76.1
9	+ Beginning Inventory	na	na	62.0	97.0	22.0	68.0	48.8	25.4	20.2	10.1	1.1
10	- Ending Inventory	na	na	61.0	60.0	99.0	22.0	55.9	48.8	25.4	20.2	10.2
11	= Inventory Change	na	na	1.0	37.0	77.0	46.0	7.1	23.4	5.2	10.2	9.1
12	= Aluminum Consumption	na	na	119.0	81.0	102.0	116.0	94.4	60.9	96.7	88.3	67.0
13	Mid-Year Population (Millions)	na	na	17.8	17.3	16.9	16.5	14.9	14.6	13.9	13.5	13.1
14	= Per Capita Consumption (kg)[1]	na	na	6.6	2.5	10.6	3.6	6.8	5.8	7.3	7.3	5.8
15	= Per Capita Consumption (kg)[2]	na	na	6.7	4.7	6.0	6.4	6.3	4.2	7.0	6.5	5.1

NOTES:
(1) Without Inventory Change
(2) Adjusted for Inventory Change
na—Not received at publication time

Source: Aluminio del Caroni, S.A.

ACSR AND ALUMINUM CABLE, BARE—Aluminum stranded conductor reinforced by a core of steel (ACSR), or aluminum (ACAR); or any other bare stranded aluminum conductor.

ATOMIZED POWDER—Powder produced by blowing or asperating molten metal through an orifice.

CASTING—A product made by pouring molten metal into a mold of a desired shape and letting it harden.

CONDUCTOR REDRAW ROD (CONTINUOUS-CAST OR ROLLED)—A solid round product that is long in relation to cross section, 0.375" or greater in diameter, produced by continuous casting followed by size-rolling, or by rolling from D.C. cast ingot, suitable for drawing into electrical conductor wire.

DIRECT MILL USES—Finished product applications supplied for the most part directly from mills rather than from distributors or jobber warehouses.

DRAWING STOCK (Redraw Rod)—See Conductor or Non Conductor Redraw Rod.

DRAWN TUBE—A hollow product that is long in relation to its cross section, which is round, square, rectangular, hexagonal, octagonal, or elliptical in shape, and brought to final dimensions by drawing.

DROSS AND SKIMMINGS—The mixture of oxides and other impurities which float to the surface of molten aluminum and is skimmed off.

EXTRUDED PIPE AND TUBE—A hollow product formed by extruding that is long in relation to its cross section, which is round, square, rectangular, hexagonal, octagonal, or elliptical in shape.

EXTRUDED ROD AND BAR—A solid product produced by extruding (sometimes brought to final dimensions by drawing) that is long in relation to cross section, which is round, square, rectangular, hexagonal, or octagonal in shape and 0.375" or greater in diameter or in at least one perpendicular distance between parallel faces.

Low-maintenance aluminum siding make it a popular choice for both new homes and renovations. 1988 shipments of aluminum sheet for residential siding totaled 347 million pounds.

EXTRUSION INGOT (BILLET)—A solid or hollow cast form, usually cylindrical, suitable for extruding.

FLAKED POWDER—Powder consisting of flat or scale-like particles of a thickness small compared with other dimensions, produced by milling in the presence of a lubricant.

EXTRUDED SHAPES—A product produced by extruding, that is long in relation to its cross-sectional dimensions and has a cross section other than that of rod and bar and pipe and tube.

FOIL—A flat rolled product, rectangular in cross section, of thickness less than 0.006".

FORGINGS (EXCLUDING IMPACT EXTRUSIONS)—A product worked to a predetermined shape by one or more processes such as hammering, upsetting, pressing, rolling, etc.

GENERAL LINE DISTRIBUTOR—Warehouses and sells a number of mill products to a wide variety of customers.

IMPACTS (EXCLUDING COLLAPSIBLE TUBES AND CANS)—A product formed in a confining die from a metal slug, usually cold, by rapid single stroke application of force through a punch, causing the metal to flow around the punch and/or through an opening in the punch or die.

INTEGRATED PRODUCER (OR SUPPLIER)—For statistical reporting, a company which produces primary aluminum ingot in the United States and produces mill products from it.

METALLURGICAL DESTRUCTIVE USES—Applications wherein, because of the way it is used, aluminum either loses its identity or is lost and cannot be recovered. Major uses include the deoxidizing of steel and reduction of ferroalloys; steel and other nonferrous metal alloys; steel coating; and such other applications as chemicals and catalysts.

MILL PRODUCTS—Metal that has been fashioned into an intermediate or semifabricated form in preparation for making a finished product. Example: sheet, a mill product, is used to make residential siding, a finished product.

NET SHIPMENTS—Excludes intra-industry shipments for further fabrication. It is the most accurate measure of industry output to markets because it eliminates duplication. Reported receipts of aluminum for further processing are subtracted.

NONCONDUCTOR REDRAW ROD (CONTINUOUS-CAST OR ROLLED)—A solid round product that is long in relation to cross section, 0.376" or greater in diameter, produced by continuous casting followed by size-rolling, or by rolling from D.C. cast ingot, suitable for drawing into nonconductor wire.

NONINTEGRATED FABRICATOR (OR SUPPLIER)—For statistical reporting, a U.S. mill product fabricator which is not affiliated with a domestic primary ingot producer.

OTHER INGOT AND MOLTEN METAL, PRIMARY—For statistical purposes, a cast form other than extrusion ingot (or molten metal), shipped by an integrated producer or nonintegrated fabricator from a company-owned facility not exclusively devoted to producing secondary ingot.

OTHER INGOT AND MOLTEN METAL, SECONDARY—For statistical purposes, a cast form other than extrusion ingot (or molten metal), principally produced from aluminum scrap to specification by secondary smelters (or others at a facility exclusively devoted to producing ingot from scrap for sale); excludes remelt scrap ingot (RSI) which is considered scrap until remelted and cast into specification ingot.

OTHER ROD AND BAR (CONTINUOUS-CAST OR ROLLED)—A solid, round, square, rectangular, hexagonal, or octagonal in shape produced by continuous casting or rolling, that is long in relation to cross section, 0.375" or greater in diameter or in at least one perpendicular distance between parallel faces; other than redraw rod and D.C. cast ingot.

PASTE—A blend of powder or flake with a thinner or plasticizer.

PLATE, NONHEAT-TREATABLE—A flat rolled product, rectangular in cross section, 0.250" or greater in thickness, which can be strengthened only by cold work.

PLATE, HEAT-TREATABLE—A flat rolled product, in 2000, 6000, or 7000 alloy series (except 7072), rectangular in cross section, 0.250" or greater in thickness, which can be strengthened by a suitable thermal treatment.

POWDER—An aggregate of discrete particles of aluminum, substantially all of which are finer than 1,000 microns (minus 18 mesh).

RECEIPTS—The metal physically received by a company for further processing.

REIMPORTS—Mill products that have been exported, partially processed outside the United States, and imported back to the United States while still in a mill product stage.

ROLLED STRUCTURAL SHAPES—A structural shape produced by hot rolling.

SCRAP—Includes "New" (prompt industrial) scrap, purchased, imported, or treated on toll, in all forms; and "Old" (post consumer or obsolete) scrap, including sweated pig; also remelt scrap ingot (RSI) which is considered scrap until remelted and cast into specification ingot.

SECONDARY SMELTER—A company whose facilities are exclusively devoted to producing ingot or molten aluminum from scrap.

SEMIFABRICATED PRODUCTS—See Mill Products.

SHEET, NONHEAT-TREATABLE—A rolled product, flat or coiled, rectangular in cross section, of 0.006" thickness but under 0.250" thickness, which can be strengthened only by cold work.

SHEET, HEAT-TREATABLE—A rolled product, in 2000, 6000, or 7000 alloy series (except 7072), flat or coiled, rectangular in cross section, of 0.006" thickness but under 0.250" thickness, which can be strengthened by a suitable thermal treatment.

STATISTICAL ADJUSTMENT—An adjustment made to product shipment data to account for net shipments of aluminum reported by the Bureau of the Census which are believed to be either over- or understated in the amounts indicated due to excessive or insufficient reporting. It also includes otherwise unpublished Census revisions. The addition of the statistical adjustment reconciles the amounts reported by the Bureau of the Census with the net shipments that the Aluminum Association feels are more correct.

WELDED TUBE—A hollow product that is long in relation to its cross section, which is round, square, rectangular, hexagonal, octagonal, or elliptical in shape, produced by forming and seam-welding sheet longitudinally.

WIRE, BARE, CONDUCTOR AND NONCONDUCTOR—A solid wrought product that is long in relation to its cross section, which is square, round, rectangular, hexagonal, or octagonal in shape, whose diameter or greatest perpendicular distance between parallel faces (except for flattened wire) is less than 0.375".

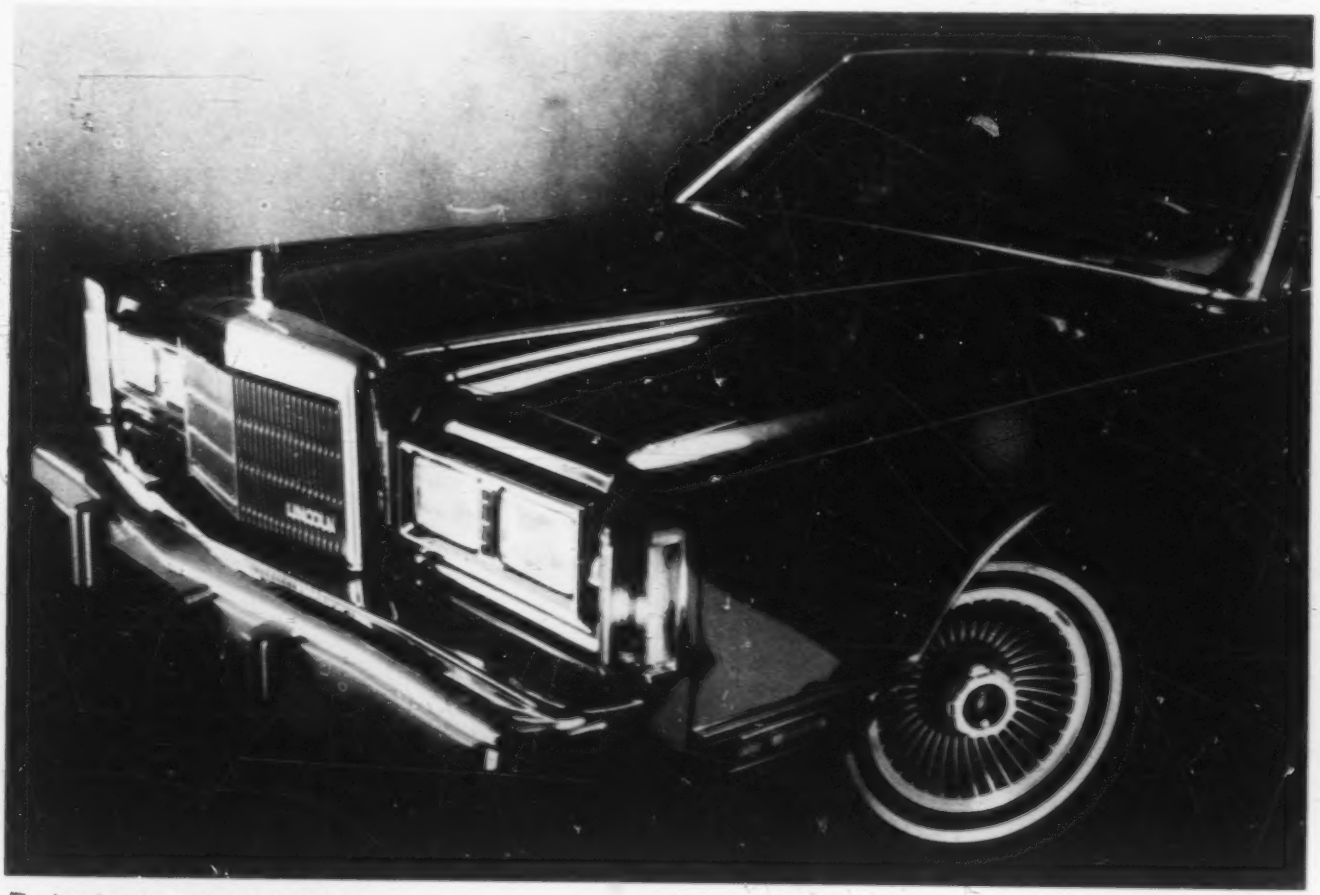
WIRE AND CABLE, INSULATED OR COVERED—Aluminum electrical conductor wire or stranded conductors that are insulated or covered.

Publications

The following publications are available from the Aluminum Association, Inc.

Aluminum Situation (monthly)
U.S. Exports and Imports of Aluminum (monthly and quarterly)
Aluminum Extrusion Press Directory
Aluminum Statistical Review
Historical Supplement
U.S. Aluminum Industry Plant Directory
Publications Guide of the Aluminum Association
Film Guide of the Aluminum Association
About the Aluminum Association (a brochure)

Write to the Publications Department, the Aluminum Association, Inc., 900 19th Street, N.W., Washington, D.C. 20006.



The hood and wheels of this 1988 Lincoln are made from aluminum. The association's Automotive and Truck Committee estimates that the average U.S. passenger car contained about 150 pounds of aluminum in 1988.